

REGION IV STREAM FISHERY DATA COLLECTION REPORT
1986 - 1987

Prepared by
Rick D. Bivens

TENNESSEE WILDLIFE RESOURCES AGENCY
JULY, 1988

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INTRODUCTION

Tennessee's rivers and streams are valuable resources. Its freshwater fish fauna is the most diverse in the United States with approximately 290 species of native fish occurring within the state. This number is greater than that found in any other state and the majority of these occur in our larger rivers and streams. For example, the Duck and Clinch are two of the most speciose rivers in North America (Starnes and Etnier 1980).

As well as offering a variety of recreational opportunities, streams and rivers across the state are also sources of both commercial and domestic water. The management and protection of this important resource has been identified as a major role of the Tennessee Wildlife Resources Agency (TWRA).

This is the first annual report on stream fishery data collection in Region IV. The purpose of this project has been to collect baseline data on fish and macroinvertebrate communities of streams in the region. With the recent implementation of the Tennessee Aquatic Data Base System (TADS), an additional purpose has been to expand and update information to aid in resource management.

Region IV has 4,847 miles of streams that total approximately 14,111 acres. There are approximately 800 miles that are classified as coldwater streams (TWRA 1986). Except for a few streams in Anderson, Campbell, and Claiborne counties

that drain into the Cumberland River system, all the streams in Region IV are in the Tennessee River drainage. The main river systems in the region are the Clinch, Powell, Little Tennessee, French Broad, and Holston.

The streams included in this report were sampled for various reasons. Some were sampled to evaluate trout stocking that has taken place, or as potential candidates for future stocking, and in two cases the elimination of trout stocking. Some have suffered from pollution for a long time while others have recovered to some extent. Others were sampled for general interest or to obtain baseline data on fish populations and species diversity.

Due to the broad scope and general nature of this project, it was deemed unnecessary to develop a detailed report on individual streams and to compare the information gathered within and among stream reaches. Therefore, the information has been presented in the results section of the report simply as individual stream accounts. These include a general summary of the survey work that took place along with the data collected and a comment section for each stream. Sample site location maps and field data forms are also included in these accounts.

METHODS

The streams to be surveyed and the methods required were outlined in Field Request No. 86-3. In addition to this list, twelve other streams were also surveyed and are included in this report. The survey work was conducted from September 1986 through October 1987. Forty-six fish samples and 87 benthos samples from 28 streams were collected.

Qualitative fishery data were collected using standard electrofishing techniques. Streams were sampled with backpack shockers or various combinations of shockers and seines. In general, small streams were sampled with a single backpack unit while larger streams were sampled with multiple units. Larger rivers were sampled with a boat shocker where deeper water permitted and with a backpack shocker or backpack shocker in combination with a seine on the shallow riffle areas.

Quantitative fishery data were collected using explosives. Primacord with a block net anchored downstream was employed. Dip nets were used to collect all the fish in the sample area. One area on the Tellico River was sampled using 5 backpack shockers operating side by side and making 3 passes for a population estimation using a depletion estimator.

Sample lengths ranged from 200 to 700 feet. Generally, 300 feet was enough on the smaller and medium size streams to include both riffle and pool habitats.

All fish were identified in the field and released when

possible. When field identification was impossible or impractical the fish were preserved in 10% formalin for later determination. Examination and confirmation on identification of problematic specimens was made by Charles F. Saylor, TVA, Dr. David A. Etnier, University of Tennessee, and Dr. Robert Jenkins, Roanoke College. Fish of rare and intrinsic value were also preserved and will eventually be cataloged into the region's fish collection. Some were deposited in The University of Tennessee Research Collection of Fishes. Common and scientific names of fishes used in this report are after Robins et al. (1980).

Game fish were weighed and measured individually. Nongame fish (suckers, catfish, carp, goldfish, and large gizzard shad) and forage fish (minnows, darters, sculpins, and small gizzard shad) were weighed as a group by species and a length range was obtained. All fish data collected was recorded on Fish Field Data Forms and all measurements are reported in English units. The letter "t" is recorded where the weight was represented only by a trace amount (less than 0.01 lb.).

Qualitative and quantitative samples are divided into categories of game fish by species, nongame fish, and forage fish. These are summarized as actual numbers and weight for all fish collected and also as percentages of the total for each group. Calculated standing crop estimates for quantitative samples are reported in number and weight per acre. All the

field data forms are presented along with each summary in the stream accounts.

Quantitative benthos samples were generally collected from two square-foot Surber samples from each fish sample site. They consisted of one sample taken from the middle and one midway between midstream and an edge. Qualitative samples were taken with a D-frame and other aquatic nets. Large particles and debris were picked from the samples and discarded. The remaining sample was preserved in 50% isopropanol and later sorted in the laboratory. Total number of organisms and a volumetric displacement measurement was made for each sample. Attempts were made to identify specimens to species level when reasonably possible. Many were identified to genus and most, at least, to family. Dr. David A. Etnier, University of Tennessee, examined much of the material and either made or confirmed the attempted identifications made by the author. Steve Ahlstedt, TVA, identified almost all of the mollusks collected. Nomenclature of aquatic insects used in this report follows Brigham et al. (1982). Benthos results are reported in table form with each stream account.

Water quality data were taken in conjunction with each fishery and benthos sample. Generally, the sample included dissolved oxygen (DO), temperature, pH, and conductivity. Data were taken from midstream and mid-depth at each site. On most streams data were collected with a 4041 Hydrolab. In other

cases, a YSI DO meter and pocket pH meter were used. Water quality parameters along with habitat data were recorded on Field Physiochemical Data Forms. These forms are included in each stream account.

Sample site locations were delineated on 7.5 minute topographical maps and copies of these have been included in the stream accounts. TADS river reach numbers and quadrangle map coordinates for sample sites are recorded on all data forms.

STREAM ACCOUNTS

Clinch River

Two qualitative fishery surveys were conducted in October 1986:

Location and Length - Sample area 1 was at the mouth of Big War Creek, Clinch River mi. 164.4, and was sampled on 21 October 1986. The sample area was 400 ft. in length and averaged 251 ft. in width. Sample area 2 was at "The Rounds" downstream of Horton Ford, Clinch River mi. 195.0, and was sampled on 30 October 1986. The sample area was 300 ft. in length and averaged 237.3 ft. in width. Both sites were in Hancock County. Area 1, Swan Island Quadrangle. Area 2, Looneys Gap Quadrangle.

Gear Type - Both sites were sampled using both boat and backpack electrofishing equipment. A shocker boat was used where deeper water permitted and shallow riffle areas were sampled with a backpack shocker.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 21 October 1986: DO - 11.0 ppm, pH - 7.9, Temperature - 59.5 F, Conductivity - 315 micromhos/cm. Area 2, on 29 October 1986: DO - 11.7 ppm, pH - 8.0, Temperature - 59.0 F, Conductivity - 312 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 84 organisms, 0.1 ml. volumetric displacement, and represented 19 different taxa. Area 2 averaged 27 organisms, 0.5 ml. volumetric displacement, and represented 11 different taxa.

Fish Collected:

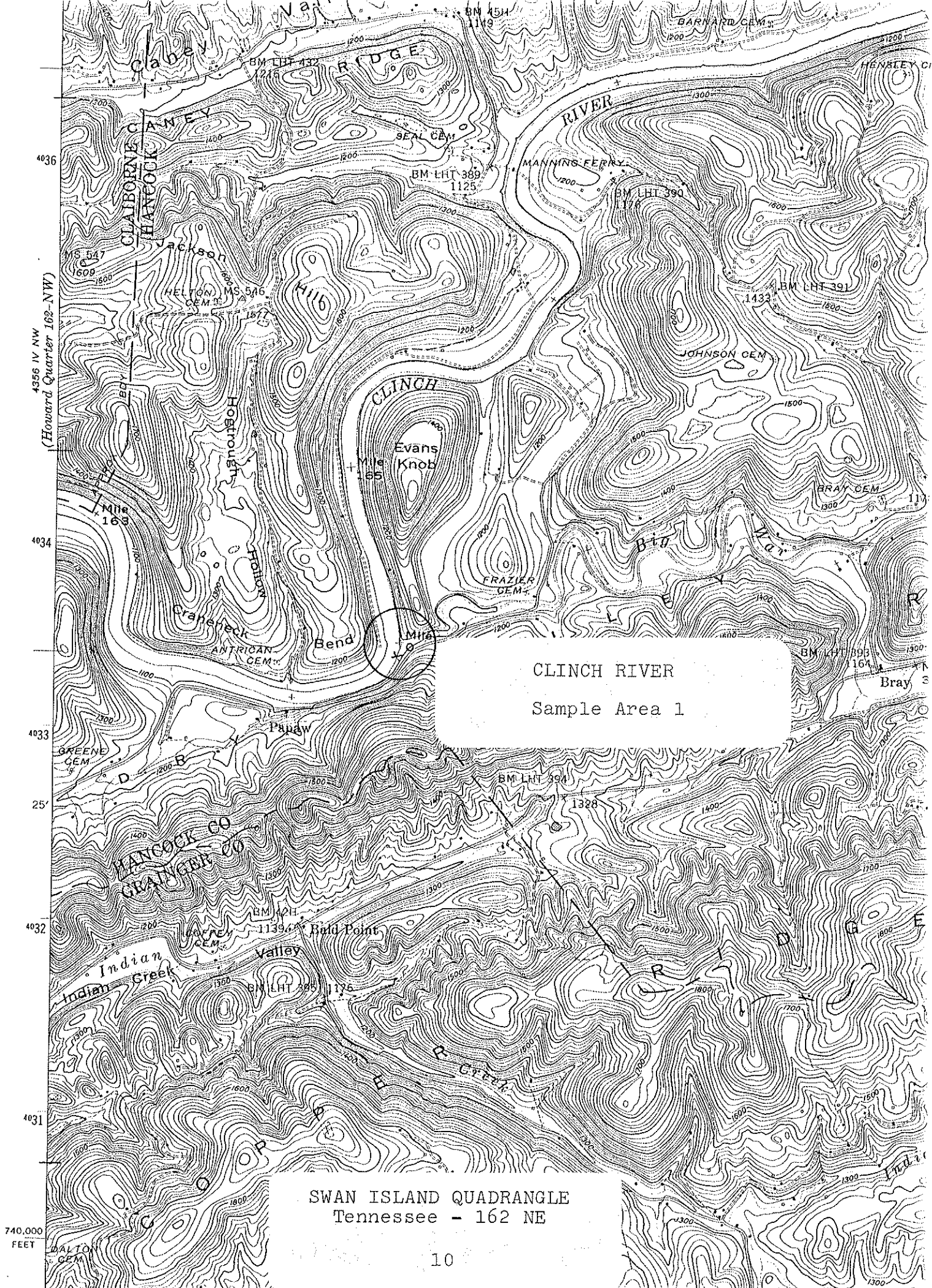
<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	No.	% by No.	Wt.	% by Wt.	No.	% by No.	Wt.	% by Wt.
Smallmouth bass	7	2.3	0.8	0.7	36	4.8	10.65	10.6
Spotted bass	1	0.3	0.3	0.2	5	0.7	0.4	0.4
Rock bass	15	4.9	2.7	2.2	41	5.4	6.5	6.5
Bluegill					1	0.1	0.1	0.1
Longear sunfish	5	1.6	0.15	0.1	45	6.0	1.25	1.2
Nongame Fish	88	28.7	118.05	96.1	102	13.5	78.9	78.8
Forage Fish	191	62.2	0.9	0.7	524	69.5	2.5	2.5
Total	307		122.9		754		100.3	

Comments:

Two areas of the Clinch River were sampled primarily to update fishery data for the agency and collect stream information for TADS. Game fish from both sites included smallmouth bass (*Micropterus dolomieu*), spotted bass (*M. punctulatus*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), and longear sunfish (*L. megalotis*). Smallmouth bass and rock bass were collected from both sites and based on our samples, it appears that the upper reach supports a better fishery than the lower portion. At the downstream site, rock bass were the primary game fish and made up about 5% by numbers and 2% by weight of all fish collected. Rock bass and smallmouth bass were about 5% by numbers at the upper site, however, smallmouth bass made up about 11% and rock bass about 7% of the total weight of all fish collected. We collected a total of 44 fish species from both sites combined.

The Clinch River has one of the most diverse fish faunas within Tennessee and is one of the most speciose rivers in North America (Starnes and Etnier 1980). Although it has not been severely damaged, portions of the Clinch (especially in Virginia) are polluted by siltation, coal fines, municipal sewage, and toxic spills. The possibility of increased coal mining activities and discharge of wastewater still pose serious threats to several species of threatened and endangered aquatic organisms found in the Clinch River (Hylton 1984).

Benthic macroinvertebrates from our samples included representatives of Caenidae, Heptageniidae, Potamanthidae, and Tricorythidae mayflies, Brachycentridae, Hydropsychidae, Hydroptilidae, and Polycentropodidae caddisflies and elmids riffle beetles. Asian clams (*Corbicula fluminea*) and river snails (*Anclusa subglobosa*, *Io fluviialis*, and *Pleurocera unciata*) were also present. *A. subglobosa* and *P. unciata* were abundant.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 362528N - 832120W
Stream Clinch River Length of Sample 400'
Area or Station Site # 1 Reach 06010205-13.0
County Hancock Date/Time 21 October 1986/1710
Data Collected By Rick D. Bivens, David Lane, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 251' Average Depth 2.1' Maximum Depth 6.2'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 30 % Sand 30 %
Clay - % Gravel - % Rubble 20 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 20 % Sand 15 %
Bedrock 30 % Other Rubble 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of Stream, Average in 30 %, Poor in 40 %
7. Shade or Canopy Good over 50 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 459.6 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 11.0 ppm Temp. 59.5°F % Saturation 105
10. Present Weather Sunny, clear, and mild.
11. Past Weather (last 24 hours) Clear and mild.
12. D.O. 11.0 pH 7.9 Temp. 59.5 Conductivity 315
13. Comments: Sample location at the mouth of Big War Creek, Clinch River mi. 164.4.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Clinch River
mi. 164.4

Watershed Clinch River Lat-Long 362528N - 832120W
 Body of Water Clinch River Date 21 October 1986
 County or River Mile Hancock Reach 06010205-13.0
 Type of Sampling Electrofishing Pool Elevation 1050'
 Gear Type Boat shocking & backpack Time 1400-1500
shocking on riffle areas.
400' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	4	7	1.0			
"	"	"	1	9	0.4			
"	"	"	1	8	0.35			
"	"	"	5	6	0.75			
"	"	"	3	5	0.2			
"	"	"	1	2	t			
<i>Lepomis megalotis</i>		208	2	2	t			
"	"	"	1	3	t			
"	"	"	1	6	0.15			
"	"	"	1	1	t			
<i>Micropterus dolomieu</i>		218	2	9	0.7			
"	"	"	1	7	0.1			
"	"	"	1	5	t			
"	"	"	2	4	t			
"	"	"	1	3	t			
<i>Micropterus punctulatus</i>		219	1	8	0.3			
<i>Hypentelium nigricans</i>		166	8	7-14	5.7			
<i>Dorosoma cepedianum</i>		48	15	11-12	8.3			
<i>Aplodinotus grunniens</i>		20	16	13-23	39.9			
<i>Lepisosteus osseus</i>		198	2	21-25	1.9			
<i>Ictalurus punctatus</i>		176	1	19	2.1			
"	"	"	2	17	2.9			
"	"	"	1	16	1.1			
"	"	"	2	15	2.2			
"	"	"	2	14	1.75			

* Label Parameter Listed

Continued on next page

Field Notes: _____

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-C525

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Clinch River
mi. 164.4

Watershed Clinch River Lat-Long 362528N - 832120W
 Body of Water Clinch River Date 21 October 1986
 County or River Mile Hancock Reach 06010205-13.0
 Type of Sampling Electrofishing Pool Elevation 1050'
 Gear Type Boat shocking & backpack Time 1400-1500
shocking on riffle areas.
400' sample length

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Moxostoma carinatum</i>	228	2	17-21	5.0			
<i>Moxostoma duquesnei</i>	229	32	4-17	39.8			
<i>Moxostoma erythrurum</i>	230	2	16-17	3.6			
<i>Moxostoma</i>							
<i>macrolepidotum</i>	231	3	13-17	3.8			
<i>Campostoma anomalum</i>	25	8	2-3	t			
<i>Hybopsis amblops</i>	155	2	2	t			
<i>Hybopsis dissimilis</i>	157	8	4-5	0.15			
<i>Notropis chrysocephalus</i>	249	4	2-3	t			
<i>Notropis galacturus</i>	253	2	4-5	0.05			
<i>Notropis leuciodus</i>	255	20	2	0.05			
<i>Notropis photogenis</i>	259	1	4	t			
<i>Notropis rubellus</i>	260	40	2	0.05			
<i>Notropis sp. cf.</i>							
<i>Notropis spectrunculus</i>	266	5	2	t			
<i>Notropis spilopterus</i>	269	6	2-4	t			
<i>Notropis telescopus</i>	272	6	2	t			
<i>Notropis volucellus</i>	277	15	2	t			
<i>Phenacobius uranops</i>	330	1	3	t			
<i>Etheostoma blennioides</i>	81	4	2-4	t			
<i>Etheostoma camurum</i>	85	12	2-3	0.05			
<i>Etheostoma maculatum</i>	101	3	2-3	t			
<i>Etheostoma rufilineatum</i>	108	13	2-3	t			
<i>Etheostoma simoterum</i>	111	6	2	t			
<i>Etheostoma zonale</i>	135	14	2-3	0.05			

* Label Parameter Listed

Continued on next page

Field Notes: _____

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-G525

Site #1 - Clinch River
mi. 164.4

[illegible]

Field Notes: _____

WR-C525

Clinch River: Site # 1, Edge Surber sample

21 October 1986

Field # 017

Hancock Co., TN; Mouth of Big War Creek, Clinch River mi.
164.4. Coordinates: 362528N - 832120W. Swan Island, Tenn.,
162 NE Quad. Reach # 06010205-13.0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	41
<u>Io fluviialis</u>	4
<u>Pleurocera unciala</u>	8
ODONATA:	
Coenagrionidae/ <u>Argia</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	4
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	1
Hydroptilidae/ <u>Hydroptila</u>	2
Polycentropodidae/ <u>Neureclipsis</u> <u>crepuscularis</u>	2
	65

Volumetric Displacement was 0.15 ml.

Clinch River: Site # 1, Midstream Surber sample

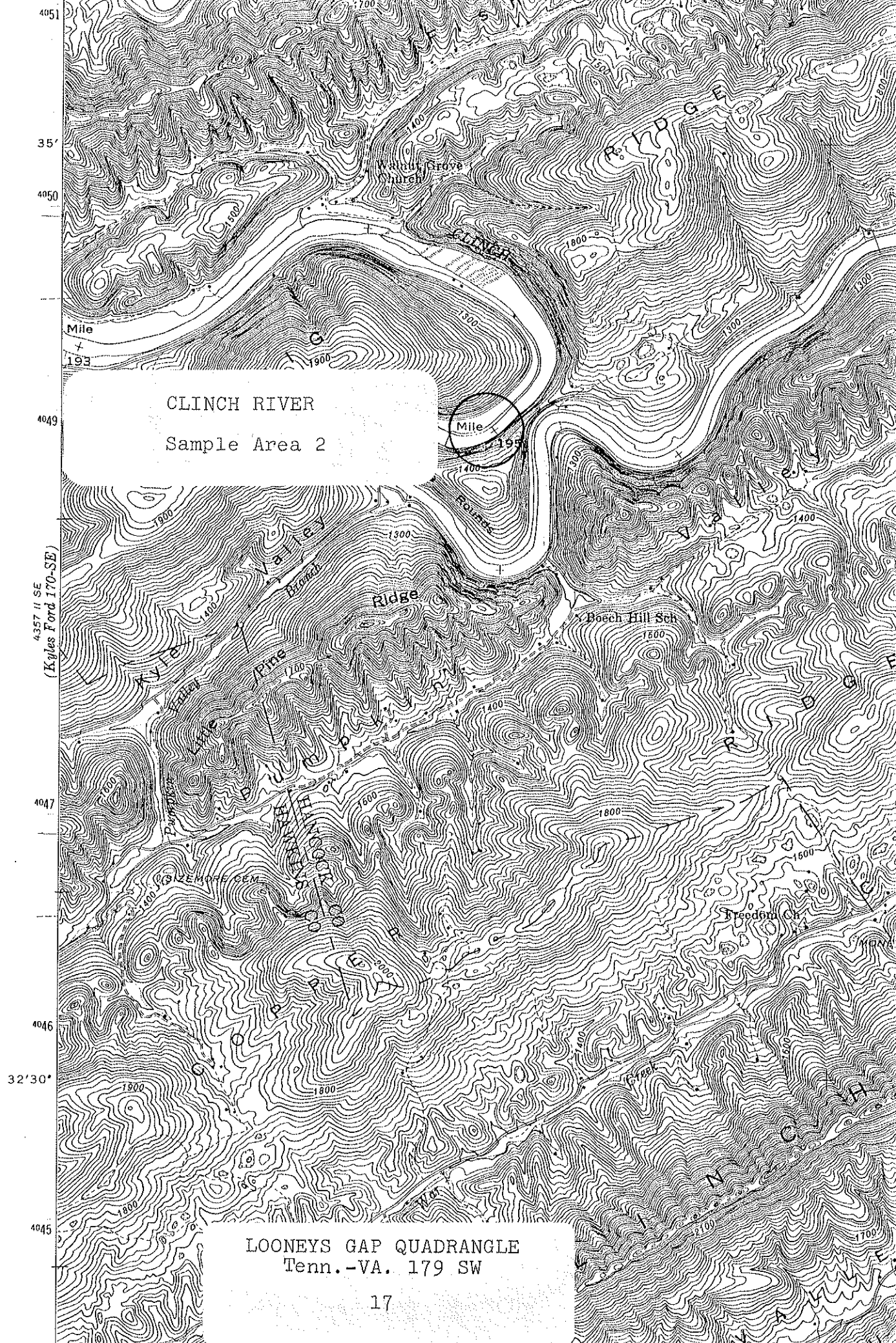
21 October 1986

Field # 017

Hancock Co., TN; Mouth of Big War Creek, Clinch River mi.
164.4. Coordinates: 362528N - 832120W. Swan Island, Tenn.,
162 NE Quad. Reach # 06010205-13.0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Dubiraphia</u> larva	1
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Stenacron</u>	3
<u>Stenonema</u>	2
Potamanthidae/ <u>Potamanthus</u>	1
Tricorythidae/ <u>Tricorythodes</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	55
<u>Pleurocera unciala</u>	25
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	1
TRICHOPTERA:	
Brachycentridae/ <u>Brachycentrus</u> case	1
Hydropsychidae/ <u>Hydropsyche</u>	4
Hydroptilidae/ <u>Hydroptila</u>	6
<u>Hydroptila spatulata</u> pupa	1
	<hr/>
	103

Volumetric Displacement was 0.1 ml.



4051
35'
4050
4049
4047
4046
32'30"
4045

4357 II SE
(Kyles Ford 170-SE)

LOONEYS GAP QUADRANGLE
Tenn.-VA. 179 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 363414N - 825834W
Stream Clinch River Length of Sample 300'
Area or Station Site # 2 Reach 06010205-17.0
County Hancock Date/Time 29 October 1986/1400
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 237.3' Average Depth 2.7' Maximum Depth 9.1'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 20 %
Clay 10 % Gravel 20 % Rubble 10 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 5 % Sand 10 %
Bedrock 80 % Other Rubble 5%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of Stream, Average in 50 %, Poor in 20 %
7. Shade or Canopy Good over 30 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 410.1: Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 11.7 ppm Temp. 59.0 °F % Saturation 115
10. Present Weather Clear and mild.
11. Past Weather (last 24 hours) Clear and mild.
12. D.O. 11.7 pH 8.0 Temp. 59.0 Conductivity 312
13. Comments: Sample location at "The Rounds" below Horton Ford,
Clinch River mi. 195.0.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - Clinch River
mi. 195.0

Watershed Clinch River Lat-Long 363414N - 825834W
 Body of Water Clinch River Date 30 October 1986
 County or River Mile Hancock Reach 06010205-17.0
 Type of Sampling Electrofishing Pool Elevation 1159'
 Gear Type Boat shocking & backpack Time 1500-1630
shocking on riffle areas.
300' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	5	2	t			
"	"	"	2	3	t			
"	"	"	2	4	0.05			
"	"	"	7	5	0.6			
"	"	"	9	6	1.75			
"	"	"	13	7	2.8			
"	"	"	2	8	0.7			
"	"	"	1	10	0.6			
<i>Lepomis macrochirus</i>		206	1	5	0.1			
<i>Lepomis megalotis</i>		208	1	1	t			
"	"	"	28	2	0.15			
"	"	"	2	3	t			
"	"	"	6	4	0.3			
"	"	"	5	5	0.4			
"	"	"	3	6	0.4			
<i>Micropterus dolomieu</i>		218	5	3	0.1			
"	"	"	11	4	0.35			
"	"	"	5	5	0.4			
"	"	"	1	6	0.2			
"	"	"	6	7	1.05			
"	"	"	1	9	0.3			
"	"	"	2	10	1.0			
"	"	"	2	11	1.2			
"	"	"	1	14	1.3			
"	"	"	1	16	2.05			

* Label Parameter Listed

Continued on next page

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Duane Oyer, and Chester J. Ellison

WR-G325

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - Clinch River
mi. 195.0

Watershed Clinch River Lat-Long 363414N - 825834W
 Body of Water Clinch River Date 30 October 1986
 County or River Mile Hancock Reach 06010205-17.0
 Type of Sampling Electrofishing Pool Elevation 1159'
 Gear Type Boat shocking & backpack Time 1500-1630
 shocking on riffle areas.
 300' sample length

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Micropterus dolomieu</i>	218	1	18	2.7			
<i>Micropterus punctulatus</i>	219	1	8	0.25			
" "	" "	4	4	0.15			
<i>Hypentelium nigricans</i>	166	5	5-14	1.5			
<i>Dorosoma cepedianum</i>	48	40	6-12	15.7			
<i>Aplodinotus grunniens</i>	20	3	14-21	9.3			
<i>Moxostoma carinatum</i>	228	4	18-24	12.9			
<i>Moxostoma duquesnei</i>	229	22	4-17	17.55			
<i>Moxostoma erythrurum</i>	230	21	3-16	13.95			
<i>Moxostoma</i>							
<i>macrolepidotum</i>	231	7	6-18	8.0			
<i>Campostoma anomalum</i>	25	14	4-6	0.5			
<i>Hybopsis amblops</i>	155	23	2	0.05			
<i>Hybopsis dissimilis</i>	157	5	3-4	0.05			
<i>Nocomis micropogon</i>	234	2	6-9	0.4			
<i>Notropis ariommus</i>	238	9	2-3	0.05			
<i>Notropis chrysocephalus</i>	249	43	2-5	0.4			
<i>Notropis coccogenis</i>	248	2	4	t			
<i>Notropis leuciodus</i>	255	6	2	t			
<i>Notropis photogenis</i>	259	7	3	0.05			
<i>Notropis rubellus</i>	260	22	1-2	t			
<i>Notropis sp. cf.</i>							
<i>Notropis spectrunculus</i>	266	172	1-2	0.15			
<i>Notropis spilopterus</i>	269	21	1-2	t			
<i>Notropis telescopus</i>	272	2	2-3	t			

* Label Parameter Listed

Continued on next page

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Duane Oyer, and Chester J. Ellison

WR-C525

Site #2 - Clinch River
mi. 195.0

[illegible]

Field Notes: _____

WR-C525

Clinch River: Site # 2, Edge Surber sample

29 October 1986

Field # 018

Hancock Co., TN; Clinch River mile 195.0, at "The Rounds".
Coordinates: 363414N - 825834W. Looneys Gap, Tenn.-VA.,
179 SW Quad. Reach # 06010205-17.0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	4
DIPTERA:	
Unidentified pupa	1
Chironomidae	7
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	4
Potamanthidae/ <u>Potamanthus</u>	17
Tricorythidae/ <u>Tricorythodes</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	1
<u>Pleurocera unciala</u>	1
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	1
TRICHOPTERA:	
Brachycentridae/ <u>Brachycentrus</u>	1
	<hr/>
	38

Volumetric Displacement was 0.5 ml.

Clinch River: Site # 2, Midstream Surber sample

29 October 1986

Field # 018

Hancock Co., TN; Clinch River mile 195.0, at "The Rounds".
Coordinates: 363414N - 825834W. Looneys Gap, Tenn.-VA.,
179 SW Quad. Reach # 06010205-17.0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	1
Tipulidae/ <u>Antocha</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	2
TRICHOPTERA:	
Brachycentridae/ <u>Brachycentrus</u>	9
Hydropsychidae/ <u>Hydropsyche hoffmani</u>	1
	<hr/>
	16

Volumetric Displacement was 0.4 ml.

Bullrun Creek (Upper)

One qualitative fishery survey was conducted in September 1986:

Location and Length - The sample area was located upstream of Ailor Gap approximately 0.2 mi. SW of county road junction with Highway 370 and was sampled on 13 September 1986. It was 300 ft. in length and averaged 13.9 ft. in width. The site was in Union County. Graveston Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. One shocker was used at this site.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 12 September 1986: DO - 8.3 ppm, pH - 7.6, Temperature - 69.4 F, Conductivity - 323 microhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 29 organisms, 0.3 ml. volumetric displacement, and represented 12 different taxa.

Fish Collected:

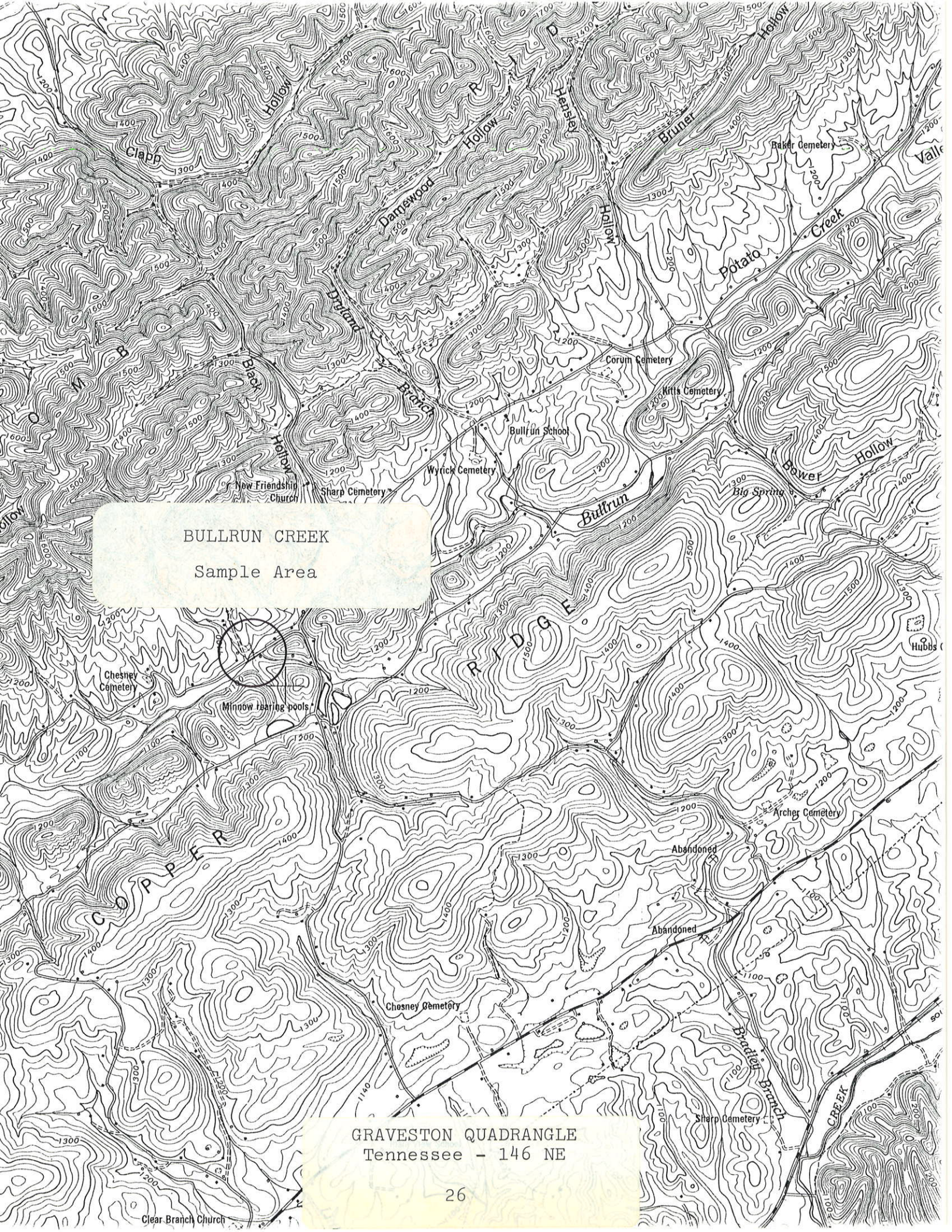
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Spotted bass	3	0.4	0.25	3.9
Rock bass	6	0.8	0.25	3.9
Bluegill	2	0.3	0.05	0.8
Redbreast sunfish	5	0.7	0.1	1.6
Longear sunfish	4	0.5	0.05	0.8
Nongame Fish	15	2.0	0.8	12.5
Forage Fish	728	95.4	4.9	76.6
Total	763		6.4	

Comments - This stream was surveyed primarily to assess its potential for trout. Trout have been stocked by various people over the years in upper Bullrun Creek and there have been recent reports of trout being caught in the upper reach, however, we collected none. Water temperature at the time we sampled the stream was adequate to support trout, however, a future check of water temperature in mid-summer would be necessary to determine if they could survive throughout the

year. The stream has no known pollution other than typical non-point-source siltation from adjacent agricultural land. Any natural reproduction of trout (provided water temperatures are adequate) would be limited due to this siltation.

Bullrun Creek is known to have good rock bass (*Ambloplites rupestris*) and smallmouth bass (*Micropterus dolomieu*) fishing in the lower stream reaches. Rock bass were the primary game fish in our collections but no smallmouth bass were found. However, spotted bass (*M. punctulatus*) were present, along with bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), and longear sunfish (*L. megalotis*). It is interesting to note the presence of the native longear sunfish along with the exotic redbreast sunfish which appears to be replacing the longear in much of the upper Tennessee River drainage (Etnier et al. 1983). We collected almost equal numbers of the two species. A total of 19 fish species was collected from the site.

Benthic macroinvertebrates from our samples included Baetidae, Caenidae, Heptageniidae, and Oligoneuriidae mayflies, Elmidae and Psephenidae beetles, and the hellgrammite (*Corydalis cornutus*).



BULLRUN CREEK

Sample Area

GRAVESTON QUADRANGLE
Tennessee - 146 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 361236N - 834738W
Stream Bullrun Creek (Upper) Length of Sample 300'
Area or Station Above Ailor Gap Reach 06010204-14,2
County Union Date/Time 12 September 1986/1030
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 13.9' Average Depth 0.5' Maximum Depth 1.9'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 5 %
Clay 5 % Gravel 20 % Rubble 40 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 20 % Silt 40 % Sand 10 %
Bedrock - % Other Rubble 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 70 %
of Stream, Average in 15 %, Poor in 15 %
7. Shade or Canopy Good over 50 % of Stream; Interferes some
(degree) with fly (type) of fishing.
8. Flow (c.f.s.) 7.2 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 8.3 ppm Temp. 69.4 °F % Saturation 92
10. Present Weather Partly cloudy
11. Past Weather (last 24 hours) Partly cloudy with light showers.
12. D.O. 8.3 pH 7.6 Temp. 69.4 Conductivity 323
13. Comments: Sample location 0.2 mi. southwest of county road junction
with state highway 370, just above new bridge on the county road.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Clinch River Lat-Long 361236N - 834738W
 Body of Water Bullrun Creek (Upper) Date 12 September 1986
 County or River Mile Union Reach 06010204-14,2
 Type of Sampling Electrofishing Pool Elevation 1040'
 Gear Type Backpack Shocker Time 1315 to 1415
300' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	6	0.1			
"	"	"	1	5	0.1			
"	"	"	2	3	0.05			
"	"	"	2	2	t			
<i>Lepomis auritus</i>		201	4	3	0.05			
"	"	"	1	4	0.05			
<i>Lepomis macrochirus</i>		206	1	4	0.05			
"	"	"	1	3	t			
<i>Lepomis megalotis</i>		208	1	2	t			
"	"	"	2	3	t			
"	"	"	1	4	0.05			
<i>Micropterus punctulatus</i>		219	1	7	0.15			
"	"	"	1	6	0.1			
"	"	"	1	3	t			
<i>Catostomus commersoni</i>		32	2	-	0.3			
<i>Hypentelium nigricans</i>		166	13	-	0.5			
<i>Camptostoma anomalum</i>		25	408	-	3.2			
<i>Hybopsis amblops</i>		155	8	2-3	t			
<i>Notropis chrysocephalus</i>		249	165	1-6	1.45			
<i>Notropis spilopterus</i>		269	6	2	t			
<i>Notropis telescopus</i>		272	3	3	t			
<i>Pimephales notatus</i>		334	60	1-3	0.15			
Continued on	next	page						

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-G525

FISH FIELD DATA FORM

Watershed <u>Clinch River</u>	Lat-Long <u>361236N - 834738W</u>
Body of Water <u>Bullrun Creek (Upper)</u>	Date <u>12 September 1986</u>
County or River Mile <u>Union</u>	Reach <u>06010204-14,2</u>
Type of Sampling <u>Electrofishing</u>	Pool Elevation <u>1040'</u>
Gear Type <u>Backpack Shocker</u>	Time <u>1315 to 1415</u>

300' sample length

[illegible]

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Bullrun Creek (Upper): Edge Surber sample

12 September 1986

Field # 010

Union Co., TN; 0.2 mi. SW of county road junction with state
hwy. #370. Coordinates: 361236N - 834738W. Graveston,
Tenn., # 146 NE Quad. Reach # 06010204-14,2.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	2
adults	2
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	2
DIPTERA:	
Unidentified pupa	1
Chironomidae	2
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	3
Caenidae/ <u>Caenis</u>	8
Heptageniidae/ <u>Heptagenia</u>	2
<u>Stenonema</u>	8
Oligoneuriidae/ <u>Isonychia</u>	4
Potamanthidae/ <u>Potamanthus</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus</u> <u>cornutus</u>	4
ODONATA:	
Coenargionidae/ <u>Argia</u>	1
	<hr/>
	40

Volumetric Displacement was 0.5 ml.

Bullrun Creek (Upper): Midstream Surber sample

12 September 1986

Field # 010

Union Co., TN; 0.2 mi. SW of county road junction with state
hwy. #370. Coordinates: 361236N - 834738W. Graveston,
Tenn., # 146 NE Quad. Reach # 06010204-14,2.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
adult	1
Psephenidae/ <u>Psephenus herricki</u>	2
DIPTERA:	
Chironomidae	4
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Caenidae/ <u>Caenis</u>	2
Heptageniidae/ <u>Stenonema</u>	1
Oligoneuriidae/ <u>Isonychia</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	2
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u> pupa	1
	<hr/>
	17

Volumetric Displacement was 0.13 ml.

North Fork Bullrun Creek

One qualitative fishery survey was conducted in September 1986:

Location and Length - The sample area was located 1.1 mi. SE of Highway 33 junction with Highway 144, just upstream of the bridge on 144, near Ailor Gap. It was sampled on 12 September 1986 and was 300 ft. in length. The site was in Union County. Graveston Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. One shocker was used at this site.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 12 September 1986: DO - 8.1 ppm, pH - 7.8, Temperature - 74.5 F, Conductivity - 358 micromhos/cm.

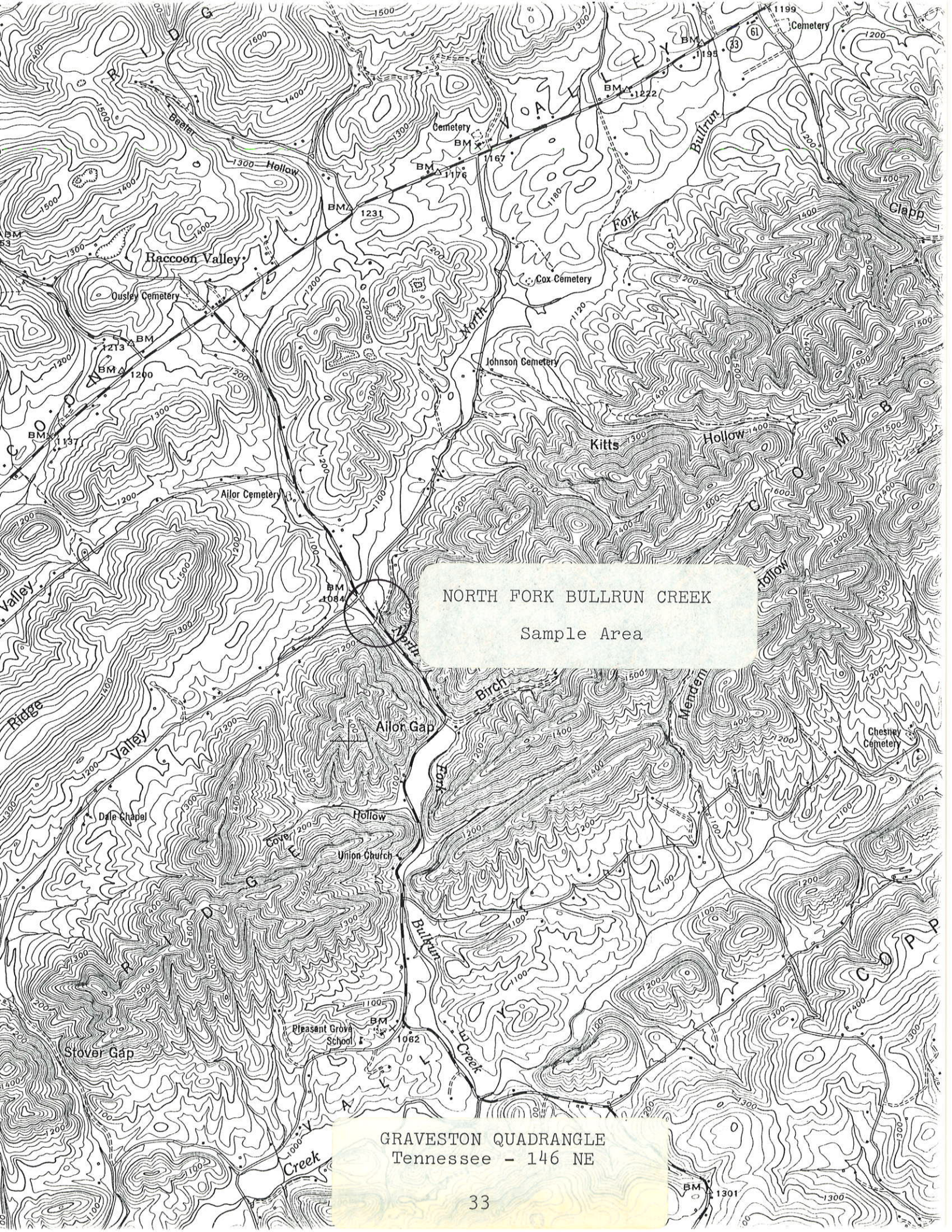
Benthos Collection - No collection made at this site.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Smallmouth bass	3	1.0	0.2	5.2
Rock bass	10	3.2	0.75	19.5
Redbreast sunfish	1	0.3	t	
Longear sunfish	8	2.6	0.05	1.3
Nongame Fish	6	1.9	0.4	10.4
Forage Fish	281	91.0	2.45	63.6
Total	309		3.85	

Comments - This stream was surveyed in addition to the sampling of upper Bullrun Creek as we were in the area and had time for a quick spot check. However, time did not allow for a full habitat survey and the sampling was done primarily to develop a fish species diversity list for TADS.

Rock bass (*Ambloplites rupestris*) were the primary game fish in our collections and smallmouth bass (*Micropterus dolomieu*) were also present. It is interesting to note, as in Bullrun Creek, the presence of the native longear sunfish (*Lepomis megalotis*) along with the exotic redbreast sunfish (*L. auritus*) which appears to be replacing the longear in much of the upper Tennessee River drainage (Etnier et al. 1983). A total of 16 fish species was collected from this site.



NORTH FORK BULLRUN CREEK

Sample Area

GRAVESTON QUADRANGLE
Tennessee - 146 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 361253N - 834955W
Stream North Fork Bullrun Creek Length of Sample 300'
Area or Station Near Ailor Gap Reach 06010204-24,0
County Union Date/Time 12 September 1986/1630
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width - Average Depth - Maximum Depth -
2. Estimated Percent of Stream in Pools is - %.
3. Estimated Percent Pool Bottom is Mud - % Silt - % Sand - %
Clay - % Gravel - % Rubble - % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt - % Sand - %
Bedrock - % Other -
5. Abundance of Littoral Aquatic Plants is Numerous -
Average - Scarce -
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in - %
of Stream, Average in - %, Poor in - %
7. Shade or Canopy Good over - % of Stream; Interferes -
(degree) with - (type) of fishing.
8. Flow (c.f.s.) -: Flow compared to Normal: Low - Normal - High -
9. D.O. 8.1 ppm Temp. 74.5 °F % Saturation 95
10. Present Weather -
11. Past Weather (last 24 hours) -
12. D.O. 8.1 pH 7.8 Temp. 74.5 Conductivity 358
- 13: Comments: Sample location 1.1 mi. southeast of state highway 33
junction with state highway 144, just above the bridge on 144.
Only water quality data were recorded for this sample.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Clinch River Lat-Long 361253N - 834955W
 Body of Water N. Fork Bullrun Creek Date 12 September 1986
 County or River Mile Union Reach 06010204-24,0
 Type of Sampling Electrofishing Pool Elevation 1062'
 Gear Type Backpack Shocker Time 1530-1630
300' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	8	0.25			
"	"	"	1	7	0.2			
"	"	"	1	6	0.1			
"	"	"	1	5	0.1			
"	"	"	3	4	0.1			
"	"	"	2	2	t			
"	"	"	1	1	t			
<i>Lepomis auritus</i>		201	1	3	t			
<i>Lepomis megalotis</i>		208	1	1	t			
"	"	"	3	2	t			
"	"	"	4	3	0.05			
<i>Micropterus dolomieu</i>		218	2	6	0.2			
"	"	"	1	3	t			
<i>Hypentelium nigricans</i>		166	6	-	0.4			
<i>Campostoma anomalum</i>		25	94	-	1.2			
<i>Hybopsis amblops</i>		155	13	2-3	0.05			
<i>Notropis chrysocephalus</i>		249	65	1-4	0.9			
<i>Notropis spilopterus</i>		269	1	2	t			
<i>Notropis telescopus</i>		272	29	2-3	0.05			
<i>Pimephales notatus</i>		334	49	1-3	0.25			
<i>Rhinichthys atratulus</i>		351	3	2	t			
<i>Etheostoma jessiae</i>		96	1	3	t			
<i>Etheostoma rufilineatum</i>		108	6	2	t			
<i>Etheostoma simoterum</i>		111	17	1-2	t			
<i>Cottus carolinae</i>		40	3	1-2	t			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-G525

Hinds Creek

Two qualitative fishery surveys were conducted in June 1987:

Location and Length - Tributary to the Clinch River. Sample area 1 was at the first bridge on the county road that is just upstream from I-75, stream mi. 10.05. The sample area was 200 ft. in length and averaged 31 ft. in width. Sample area 2 was upstream of the first bridge crossing on the county road just upstream of Anderson/Union County line. The sample area was 200 ft. in length and averaged 16.9 ft. in width. Both sites were sampled on 8 June 1987. Site 1 was in Anderson County. Norris Quadrangle. Site 2 was in Union County. Big Ridge Park Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Each area was sampled using a single shocker operating at 110 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab on 8 June 1987. Area 1: DO - 8.5 ppm, pH - 7.2, Temperature - 68.9 F, Conductivity - 130 micromhos/cm. Area 2: DO - 9.0 ppm, pH - 7.6, Temperature - 73.2 F, Conductivity - 331 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 64 organisms, 0.6 ml. volumetric displacement, and represented 16 different taxa. Area 2 averaged 23 organisms, 0.5 ml. volumetric displacement, and represented 13 different taxa.

Fish Collected:

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	No.	% by No.	Wt.	% by Wt.	No.	% by No.	Wt.	% by Wt.
Smallmouth bass	2	0.3	0.15	1.6				
Spotted bass	1	0.2	1.1	11.4				
Rock bass	1	0.2	t		12	2.7	1.25	11.4
Bluegill	6	1.0	0.5	5.2	1	0.2	t	
Redbreast sunfish	17	2.8	0.45	4.7	10	2.3	0.3	2.7
Nongame Fish	37	6.2	3.0	31.1	40	9.0	6.6	60.0
Forage Fish	535	89.3	4.45	46.1	380	85.8	2.85	25.9
Total	599		9.65		443		11.0	

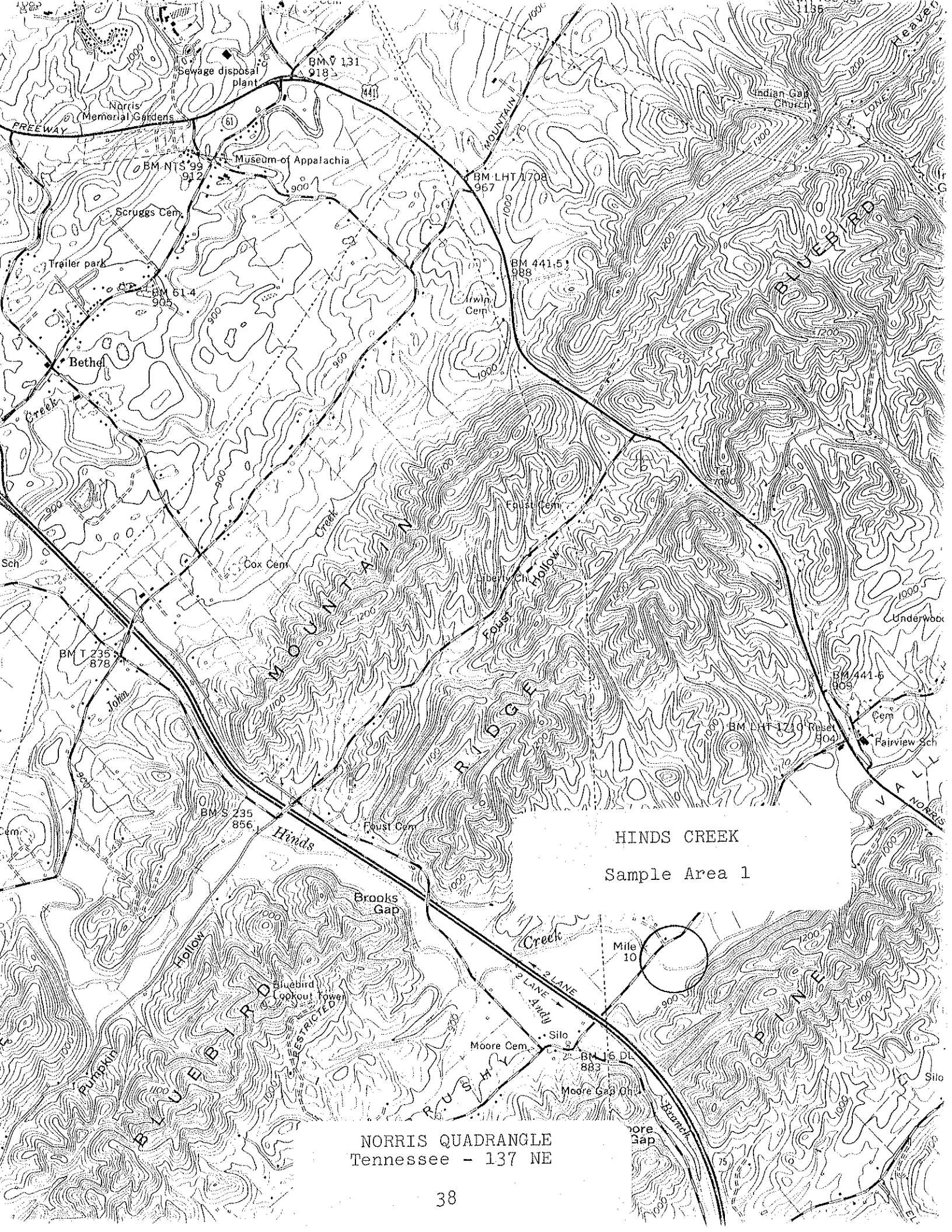
Comments:

This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Game fish from both sites included smallmouth bass (*Micropterus dolomieu*), spotted bass (*M. punctulatus*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), and redbreast sunfish (*L. auritus*). Smallmouth and spotted bass were collected only from the lower sample area while rock bass, bluegill, and redbreast sunfish were collected from both sites. We collected a total of 22 fish species from both sites combined, similar to those reported by Etnier et al. (1983). In their survey, they collected almost equal numbers of the longear sunfish (*L. megalotis*) and redbreast sunfish, however, we found no longear sunfish at either site.

It is also interesting to note the occurrence of the stripetail darter (*Etheostoma kennicotti*) from our upper sample area. This species inhabits small, slab-pool streams and although locally common, it is sporatically distributed in the Tennessee River portion of its range (Page 1980; Page and Smith 1976).

The stream receives fairly heavy non-point-source siltation throughout the watershed and tolerant species dominate the fish fauna.

Benthic macroinvertebrates from our samples included Baetidae, Caenidae, Heptageniidae, and Oligoneuriidae mayflies, Hydropsychidae, Limnephilidae, and Philopotamidae caddisflies, chironomids, and Elmidae and Psephenidae beetles. Asian clams (*Corbicula fluminea*) and river snails (*Goniobasis simplex* and *Pleurocera unciata*) were also present.



NORRIS QUADRANGLE
Tennessee - 137 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Clinch River Lat-Long 360832N - 840227W
Stream Hinds Creek Length of Sample 200'
Area or Station Site # 1 Reach 06010204-17.0
County Anderson Date/Time 8 June 1987/1145
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 31' Average Depth 0.8' Maximum Depth 2.7'
2. Estimated Percent of Stream in Pools is 50 %
3. Estimated Percent Pool Bottom is Mud 20 % Silt 30 % Sand 20 %
Clay 10 % Gravel 10 % Rubble 10 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 30 % Sand 30 %
Bedrock - % Other Rubble 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of stream, Average in 35 %, Poor in 15 %.
7. Shade or Canopy Good over 80 % of Stream.
8. Flow (c.f.s.) 20.8 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 8.5 ppm Temp. 68.9 °F % Saturation 93
10. Present Weather Partly cloudy and warm; air temp. 82°F
11. Past Weather (last 24 hours) Partly cloudy and warm.
12. D.O. 8.5 pH 7.2 Temp. 68.9 Conductivity 130
13. Comments: Sample location at the first bridge on county road that is just upstream from I-75; stream mile 10.05. Stream is fairly silty, but has good cover for fish (logs, etc.).

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Hinds Creek
mi. 10.05

Watershed Clinch River Lat-Long 360832N - 840227W
 Body of Water Hinds Creek Date 8 June 1987
 County or River Mile Anderson Reach 06010204-17,0
 Type of Sampling Electrofishing Pool Elevation 863'
 Gear Type Backpack Shocker Time 1310-1400
 200' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	2	t			
<i>Lepomis auritus</i>		201	1	6	0.1			
"	"	"	2	5	0.15			
"	"	"	1	4	0.05			
"	"	"	3	3	0.05			
"	"	"	10	2	0.1			
<i>Lepomis macrochirus</i>		206	1	7	0.2			
"	"	"	1	6	0.1			
"	"	"	1	5	0.1			
"	"	"	1	4	0.05			
"	"	"	2	3	0.05			
<i>Micropterus dolomieu</i>		218	1	5	0.05			
"	"	"	1	6	0.1			
<i>Micropterus punctulatus</i>		219	1	13	1.1			
<i>Hypentelium nigricans</i>		166	34	1-9	2.7			
<i>Moxostoma duquesnei</i>		229	2	6-7	0.2			
<i>Moxostoma erythrurum</i>		230	1	7	0.1			
<i>Campostoma anomalum</i>		25	342	1-5	3.45			
<i>Hybopsis amblope</i>		155	21	2-3	0.05			
<i>Notropis chrysocephalus</i>		249	43	2-6	0.65			
<i>Notropis galacturus</i>		253	6	2-4	t			
<i>Notropis spilopterus</i>		269	20	1-3	0.05			
<i>Pimephales notatus</i>		334	18	1-3	0.05			
Continued on	next	page						

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-G525

Site #1 - Hinds Creek
mi. 10.05

[illegible]

Field Notes: _____

WR-C525

Hinds Creek: Site # 1, Edge Surber sample

8 June 1987

Field # 034

Anderson Co., TN; Upstream of county road bridge at stream
mi. 10.05. Coordinates: 360832N - 840227W. Norris, Tenn.,
137 NE Quad. Reach # 06010204-17,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
Psephenidae/ <u>Psephenus herricki</u>	4
DECAPODA:	2
DIPTERA:	
Unidentified pupa	1
Chironomidae	16
EPHEMEROPTERA:	
Caenidae/ <u>Caenis</u>	9
Heptageniidae/ <u>Stenonema</u>	6
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
ODONATA:	
Gomphidae/ <u>Lanthus</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	3
Limnephilidae/ <u>Neophylax</u>	1
	46

Volumetric Displacement was 0.5 ml.

Hinds Creek: Site # 1, Midstream Surber sample

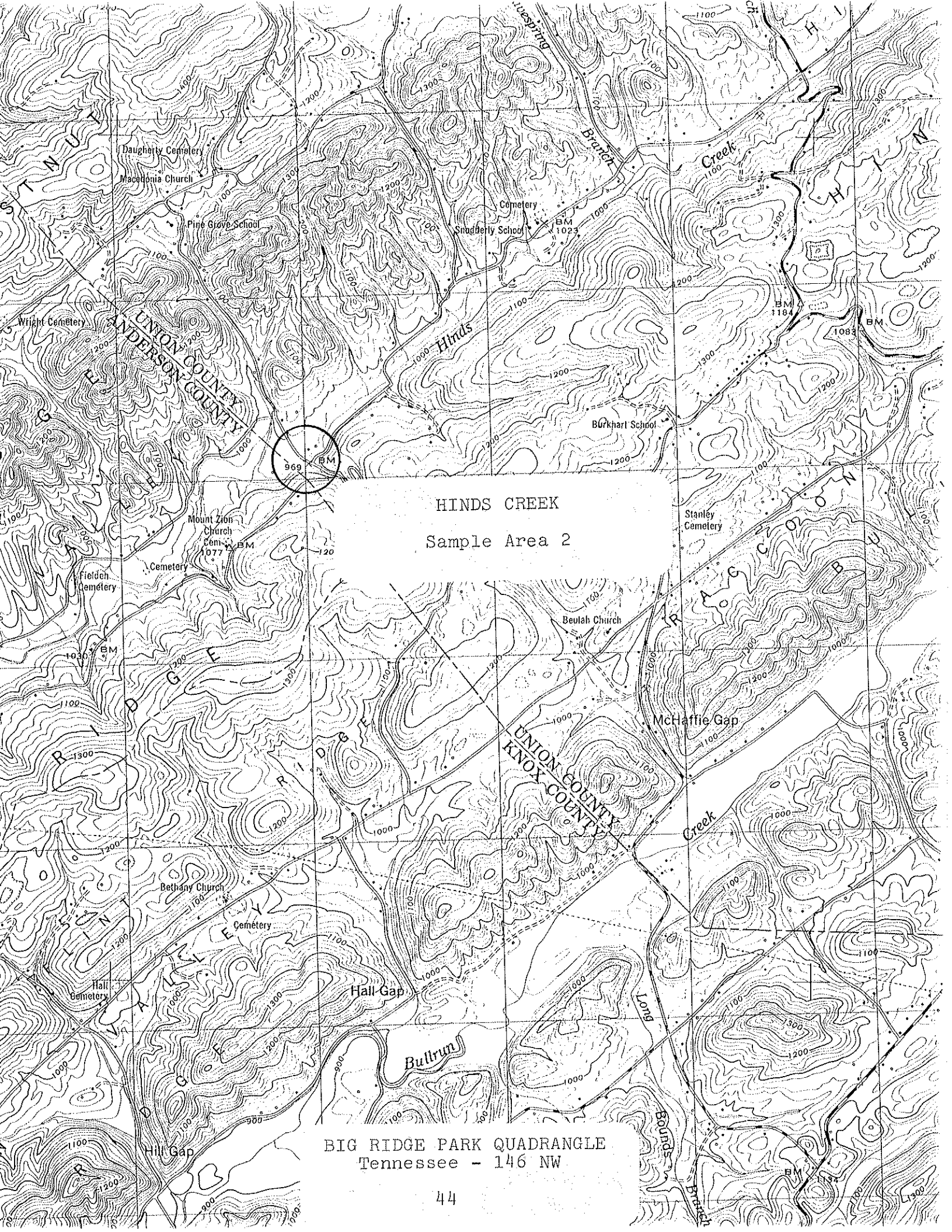
8 June 1987

Field # 034

Anderson Co., TN; Upstream of county road bridge at stream
mi. 10.05. Coordinates: 360832N - 840227W. Norris, Tenn.,
137 NE Quad. Reach # 06010204-17,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	3
DECAPODA:	5
DIPTERA:	
Unidentified pupae	2
Chironomidae	28
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Caenidae/ <u>Caenis</u>	13
Heptageniidae/ <u>Stenonema</u>	2
Oligoneuriidae/ <u>Isonychia</u>	2
OLIGOCHAETA:	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	15
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	8
Philopotamidae/ <u>Chimarra</u>	1
	<hr/>
	82

Volumetric Displacement was 0.75 ml.



HINDS CREEK
Sample Area 2

BIG RIDGE PARK QUADRANGLE
Tennessee - 146 NW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Clinch River Lat-Long 361133N - 835648W
Stream Hinds Creek Length of Sample 200'
Area or Station Site # 2 Reach 06010204-19,1
County Union Date/Time 8 June 1987/1630
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 16.9' Average Depth 0.5' Maximum Depth 2.0'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 20 % Silt 30 % Sand 20 %
Clay - % Gravel 10 % Rubble 10 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 10 % Sand 30 %
Bedrock - % Other Rubble 40% Boulders 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of stream, Average in 25 %, Poor in 25 %.
7. Shade or Canopy Good over 80 % of Stream.
8. Flow (c.f.s.) 6.1 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.0 ppm Temp. 73.2 °F % Saturation 102
10. Present Weather Partly cloudy and warm; air temp. 92° F
11. Past Weather (last 24 hours) Partly cloudy and warm.
12. D.O. 9.0 pH 7.6 Temp. 73.2 Conductivity 331
13. Comments: Sample location above first bridge crossing on county
road just upstream of county line. Silty stream - lots of
agricultural practices in the valley.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - 1st bridge
crossing county
rd. just up-
stream of
county line

Watershed Clinch River Lat-Long 361133N - 835648W
Body of Water Hinds Creek Date 8 June 1987
County or River Mile Union Reach 06010204-19,1
Type of Sampling Electrofishing Pool Elevation 965'
Gear Type Backpack Shocker Time 1740-1815
200' sample length

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	10	0.6			
"	"	"	1	7	0.2			
"	"	"	1	6	0.1			
"	"	"	2	5	0.15			
"	"	"	4	4	0.2			
"	"	"	1	3	t			
"	"	"	2	2	t			
<i>Lepomis auritus</i>		201	1	5	0.1			
"	"	"	4	4	0.15			
"	"	"	2	3	0.05			
"	"	"	3	2	t			
<i>Lepomis macrochirus</i>		206	1	3	t			
<i>Catostomus commersoni</i>		32	15	2-11	1.6			
<i>Hypentelium nigricans</i>		166	21	1-11	2.05			
<i>Moxostoma erythrurum</i>		230	4	5-14	2.95			
<i>Camptostoma anomalum</i>		25	160	1-5	1.55			
<i>Hybopsis amblops</i>		155	18	2-3	0.05			
<i>Notropis chrysocephalus</i>		249	87	2-5	0.8			
<i>Pimephales notatus</i>		334	37	2-3	0.15			
<i>Rhinichthys atratulus</i>		351	19	1-3	0.05			
<i>Etheostoma jessiae</i>		96	8	2	t			
<i>Etheostoma kennicotti</i>		98	4	2	t			
<i>Etheostoma rufilineatum</i>		108	3	2	t			
<i>Etheostoma simoterum</i>		111	27	1-2	0.05			
<i>Cottus carolinae</i>		40	17	2-4	0.2			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-G525

Hinds Creek: Site # 2, Edge Surber sample

8 June 1987

Field # 035

Union Co., TN; First bridge crossing upstream of Anderson/
Union Co. line. Coordinates: 361133N - 835648W. Big
Ridge Park, Tenn., # 146 NW Quad. Reach # 06010204-19,1.

TAXA	NUMBER
DIPTERA:	
Unidentified pupa	1
Chironomidae	4
EPHEMEROPTERA:	
Baetidae/Baetis	2
Heptageniidae/Heptagenia	1
<u>Stenacron</u>	3
<u>Stenonema</u>	4
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	1
TRICHOPTERA:	
Limnephilidae/ <u>Neophylax</u>	9
	<hr/>
	25

Volumetric Displacement was 0.75 ml.

Hinds Creek: Site # 2, Midstream Surber sample

8 June 1987

Field # 035

Union Co., TN; First bridge crossing upstream of Anderson/
Union Co. line. Coordinates: 361133N - 835648W. Big
Ridge Park, Tenn., # 146 NW Quad. Reach # 06010204-19,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	3
<u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae	2
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Stenacron</u>	3
<u>Stenonema</u>	6
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	1
OLIGOCHAETA:	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
Limnephilidae/ <u>Neophylax</u>	1
	<hr/>
	21

Volumetric Displacement was 0.25 ml.

Cane Creek

One qualitative fishery survey was conducted in December 1986:

Location and Length - Tributary to the Clinch River. The sample area was located between the railroad bridges just upstream of the mouth and was sampled on 5 December 1986. It was 600 ft. in length and averaged 26 ft. in width. The site was in Anderson County. Lake City Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Only one shocker, operating at 110 v. AC, was used at this site.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 5 December 1986: DO - 12.5 ppm, pH - 8.0, Temperature - 42.1 F, Conductivity - 266 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 20 organisms, 0.4 ml. volumetric displacement, and represented 10 different taxa.

Fish Collected:

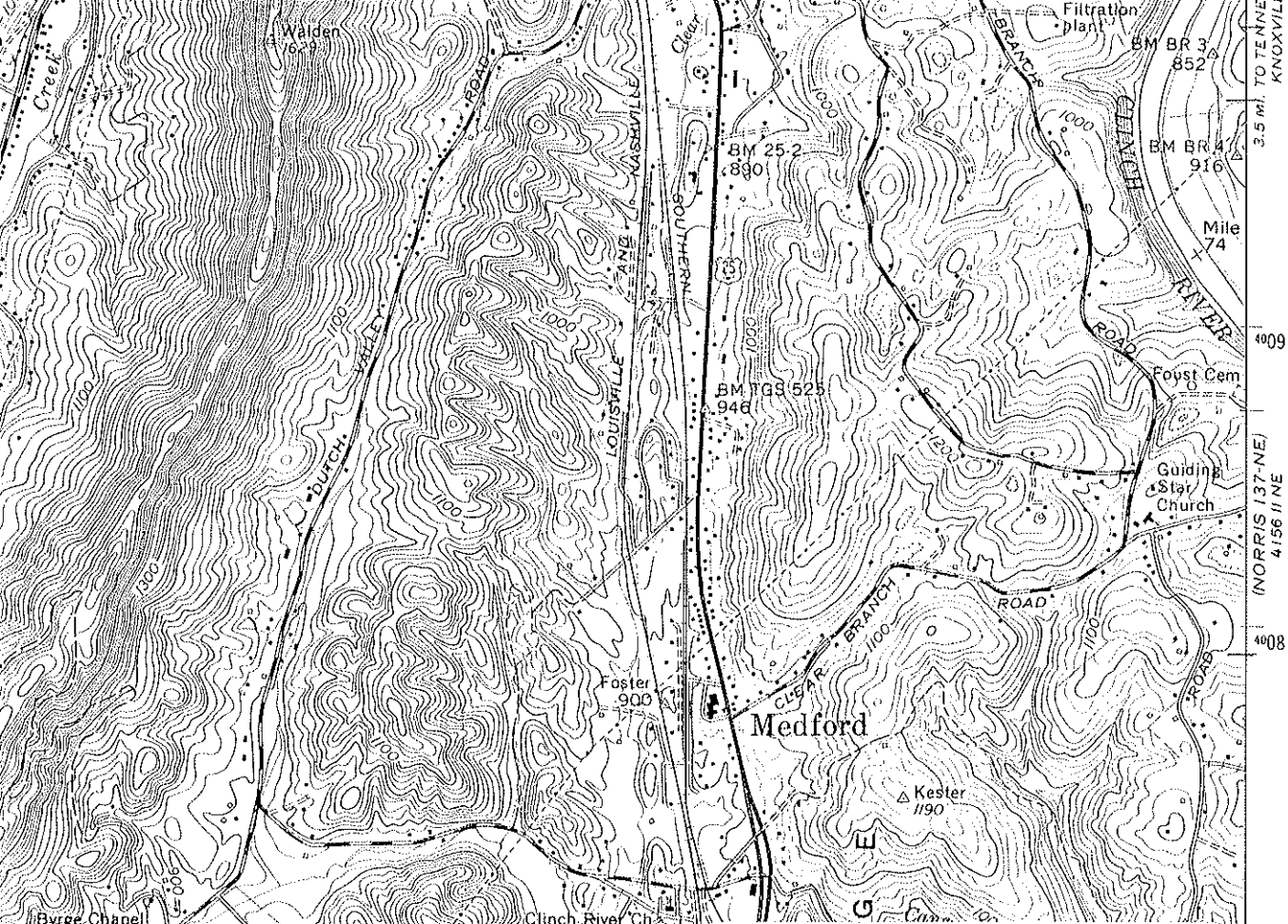
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	25	3.8	5.0	50.5
Brown trout	1	0.2	0.45	4.5
Spotted bass	1	0.2	t	
Rock bass	3	0.5	t	
Bluegill	103	15.8	1.3	13.1
Redear sunfish	1	0.2	t	
Nongame Fish	10	1.5	1.0	10.1
Forage Fish	508	77.9	2.15	21.7
Total	652		9.9	

Comments - This stream was surveyed primarily to assess its trout population, develop a fish species diversity list, and collect stream information for TADS. A TWRA (1967) inventory survey reported that extensive rainbow trout (*Salmo gairdneri*) reproduction occurred in the stream. Game fish from our recent collection included rainbow trout, along with brown trout (*S. trutta*), spotted bass (*Micropterus punctulatus*),

rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), and redear sunfish (*L. microlophus*). Bluegill were the primary game fish by number and made up about 16% of the fish collected, but rainbow trout accounted for 50% of the total weight of all fish collected. A total of 18 fish species was collected from the site.

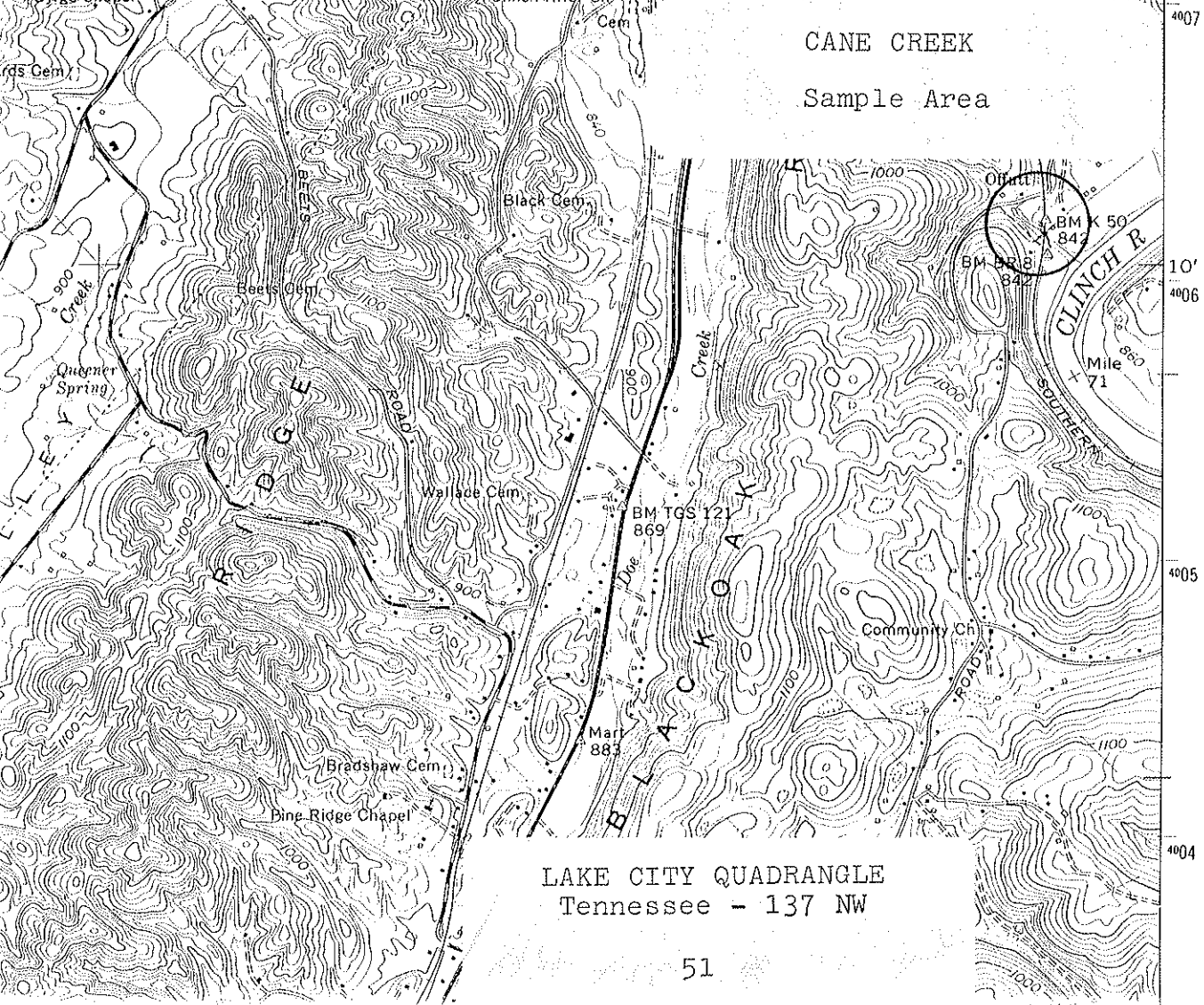
The stream has no known pollution other than non-point-source siltation, however, trash dumping along the stream course takes away from the overall appearance. Although it is fairly silty in places, the presence of a trout population and the intolerant telescope shiner (*Notropis telescopus*) indicates fairly good water quality. It is also interesting to note the occurrence of the rosefin shiner (*N. ardens*) which has very localized populations in Ridge and Valley streams (Etnier and Starnes 1980).

Benthic macroinvertebrates from our samples were low in numbers and included Ephemerellidae, Heptageniidae, and Oligoneuriidae mayflies, elmids riffle beetles, chironomids, and limnephilid caddisflies. The Asian clam (*Corbicula fluminea*) was also present.



CANE CREEK

Sample Area



LAKE CITY QUADRANGLE
Tennessee - 137 NW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 361003N - 840747W
Stream Cane Creek Length of Sample 600'
Area or Station Near the mouth. Reach 06010207-
County Anderson Date/Time 5 December 1986/1030
Data Collected By Rick D. Bivens, Chester J. Ellison, and Robin Ayers

B. PHYSICAL CHARACTERISTICS

1. Average Width 26' Average Depth 0.6' Maximum Depth 2.8'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 20 %
Clay 5 % Gravel 30 % Rubble 5 % Boulders 5 %
Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 15 %
Bedrock 5 % Other Rubble 50%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of Stream, Average in 40 %, Poor in 20 %
7. Shade or Canopy Good over 40 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 15.0 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 12.5 ppm Temp. 42.1 °F % Saturation 100
10. Present Weather Clear and cool, air temp. 44° F
11. Past Weather (last 24 hours) Clear and cold, low 20s° F overnight.
12. D.O. 12.5 pH 8.0 Temp. 42.1 Conductivity 266
13. Comments: Sample location between railroad bridges just above the
mouth. Stream is fairly silty. Receives a lot of trash dumping.
Evidence of use by fishermen. This section influenced by Clinch
River water levels and fish fauna.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Clinch River Lat-Long 361003N - 840747W
 Body of Water Cane Creek Date 5 December 1986
 County or River Mile Anderson Reach 06010207-
 Type of Sampling Electrofishing Pool Elevation 805'
 Gear Type Backpack Shocker Time 1215-1330
600' sample length

SPECIES		CODE	NUMBER	LENGTH	WT.	*	*	*
Name								
<i>Salmo gairdneri</i>		353	5	7	0.5			
"	"	"	6	8	0.9			
"	"	"	8	9	1.9			
"	"	"	6	10	1.7			
<i>Salmo trutta</i>		355	1	11	0.45			
<i>Ambloplites rupestris</i>		13	1	4	t			
"	"	"	2	2	t			
<i>Lepomis macrochirus</i>		206	3	1	t			
"	"	"	51	2	0.4			
"	"	"	40	3	0.45			
"	"	"	6	4	0.15			
"	"	"	2	5	0.2			
"	"	"	1	6	0.1			
<i>Lepomis microlophus</i>		209	1	3	t			
<i>Micropterus punctulatus</i>		219	1	5	t			
<i>Catostomus commersoni</i>		32	9	3-11	1.0			
<i>Hypentelium nigricans</i>		166	1	2	t			
<i>Camptostoma anomalum</i>		25	53	1-6	0.35			
<i>Hybopsis amblops</i>		155	183	2-3	0.45			
<i>Notropis ardens</i>		237	35	1-3	t			
<i>Notropis chrysocephalus</i>		249	68	1-5	0.8			
<i>Notropis telescopus</i>		272	15	2-3	t			
Continued on		next	page					

* Label Parameter Listed

Field Notes Stream is fairly silty. Receives a lot of trash dumping.

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Robin Ayers

WR-G525

FISH FIELD DATA FORM

Watershed <u>Clinch River</u>	Lat-Long <u>361003N - 840747W</u>
Body of Water <u>Cane Creek</u>	Date <u>5 December 1986</u>
County or River Mile <u>Anderson</u>	Reach <u>06010207-</u>
Type of Sampling <u>Electrofishing</u>	Pool Elevation <u>805'</u>
Gear Type <u>Backpack Shocker</u>	Time <u>1215-1330</u>
600' sample length	

[illegible]

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Robin Ayers

WP-C525

Cane Creek: Edge Surber sample

5 December 1986

Field # 025

Anderson Co., TN; Near railroad bridge near the mouth.
Coordinates: 361003N - 840747W. Lake City, Tenn., # 137
NW Quad. Reach # 06010207-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Dubiraphia</u> larva	1
DIPTERA:	
Chironomidae	2
Tipulidae/ <u>Limnophila</u>	1
EPHEMEROPTERA:	
Ephemerellidae/ <u>Ephemerella</u>	1
Heptageniidae/ <u>Stenacron</u>	1
<u>Stenonema</u>	5
Oligoneuriidae/ <u>Isonychia</u>	1
OLIGOCHAETA:	2
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	3
TRICHOPTERA:	
Limnephilidae/ <u>Pycnopsyche</u>	1
	<hr/>
	18

Volumetric Displacement was 0.5 ml.

Cane Creek: Midstream Surber sample

5 December 1986

Field # 025

Anderson Co., TN; Near railroad bridge near the mouth.
Coordinates: 361003N - 840747W. Lake City, Tenn., # 137
NW Quad. Reach # 06010207-.

TAXA	NUMBER
DIPTERA:	
Chironomidae	3
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	2
<u>Stenonema</u>	16
Oligoneuriidae/ <u>Isonychia</u>	1
	<hr/>
	22

Volumetric Displacement was 0.25 ml.

Coal Creek

Two qualitative fishery surveys were conducted in December 1986:

Location and Length - Tributary to the Clinch River. Sample area 1 was 1.5 mi. upstream from the mouth and was sampled on 16 December 1986. The sample area was 200 ft. in length and averaged 35.3 ft. in width. Sample area 2 was located at the end of the county road, upstream of Briceville, where a jeep road crosses the stream, and was sampled on 17 December 1986. The sample area was 400 ft. in length and averaged 25 ft. in width. Both sites were in Anderson County. Lake City Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Each area was sampled using a single shocker operating at 110 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 16 December 1986: DO - 11.4 ppm, pH - 7.4, Temperature - 47.3 F, Conductivity - 240 micromhos/cm. Area 2, on 17 December 1986: DO - 11.5 ppm, pH - 7.4, Temperature - 46.4 F, Conductivity - 240 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 12 organisms, 0.3 ml. volumetric displacement, and represented 9 different taxa. Area 2 averaged 12 organisms, 0.1 ml. volumetric displacement, and represented 8 different taxa.

Fish Collected:

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	5	11.6	1.2	13.6				
Brown trout	1	2.3	0.2	2.3				
Rock bass					3	1.0	0.35	9.6
Bluegill	1	2.3	t					
Redbreast sunfish					1	0.3	0.1	2.7
Longear sunfish					1	0.3	0.05	1.4
Nongame Fish	17	39.5	6.8	77.3	22	7.3	1.4	38.4
Forage Fish	19	44.2	0.6	6.8	273	91.0	1.75	47.9
Total	43		8.8		300		3.65	

Coal Creek has had a long history of degradation. Pollution from untreated sewage and domestic rubbish from Briceville and the general area above Lake City, heavy siltation and acid mine pollution from coal mining operations in the watershed, and channelization in and through Lake City have all occurred. In spite of this, surveys in the early and middle 1970s by TVA indicated a fairly diverse fish population present (TVA 1973; TVA unpublished data).

In an effort to update information for the agency, we surveyed two areas of Coal Creek, one downstream of Lake City near the mouth, and the other upstream of Briceville. Game fish from both sample sites included rainbow trout (*Salmo gairdneri*), brown trout (*S. trutta*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), and longear sunfish (*L. megalotis*). Rainbow trout, brown trout, and bluegill were collected only from the lower area while rock bass, redbreast sunfish, and longear sunfish were collected only from the upper site. Game fish were low in numbers from both areas and at the lower site, the total number of fish was very low. Also, the trout from the lower site were fish that had been stocked in the Clinch River. In all we collected a total of 22 fish species. Ten species from the downstream, and 15 from the upstream site. The upstream site not only had higher species diversity but also a greater number of fish overall. This would tend to indicate that the lower stream reaches are still being adversely affected by pollution.

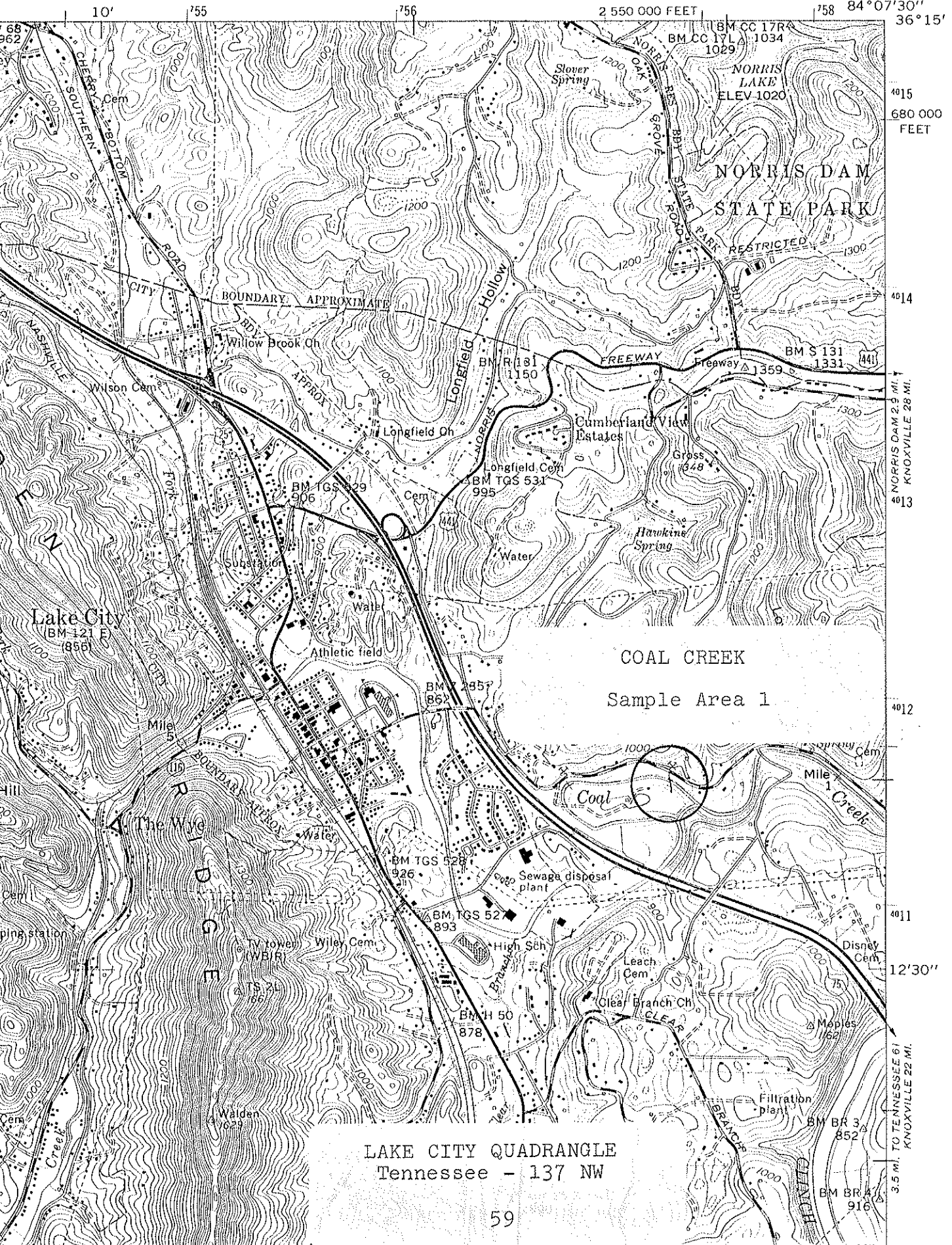
Benthic macroinvertebrates from our samples were low in both total numbers and diversity. These included representatives of Ephemeridae and Heptageniidae mayflies, Hydropsychidae and Glossosomatidae caddisflies, and Taeniopterygidae stoneflies. The only mollusk collected was the Asian clam (*Corbicula fluminea*) from the lower site.

LAKE CITY QUADRANGLE

TENNESSEE

7.5 MINUTE SERIES (TOPOGRAPHIC) 137-NW

415619E
IDEMORY 136-SE)



LAKE CITY QUADRANGLE
Tennessee - 137 NW

TENNESSEE WILDLIFE RESOURCES AGENCY

PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 361300N - 840811W
 Stream Coal Creek Length of Sample 200'
 Area or Station Site # 1 Reach 06010207-27,0
 County Anderson Date/Time 16 December 1986/1230
 Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 35.3' Average Depth 1.3' Maximum Depth 3.5'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 30 % Sand 40 %
 Clay - % Gravel 5 % Rubble 5 % Boulders 5 %
 Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 20 % Sand 30 %
 Bedrock 10 % Other Rubble 40%
5. Abundance of Littoral Aquatic Plants is Numerous _____
 Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
 of Stream, Average in 40 %, Poor in 20 %
7. Shade or Canopy Good over 40 % of Stream; Interferes little
 (degree) with any (type) of fishing.
8. Flow (c.f.s.) 51.4 : Flow compared to Normal: Low _____ Normal _____ High X
9. D.O. 11.4 ppm Temp. 47.3 °F % Saturation 97
10. Present Weather Partly cloudy and mild, air temp. 55°F
11. Past Weather (last 24 hours) Partly cloudy and cool overnight.
12. D.O. 11.4 pH 7.4 Temp. 47.3 Conductivity 240
13. Comments: Sample location 1.5 mi. above the mouth. Heavy
siltation; coal fines; trash dumping.

Site #1 - 1.5 mi. above
the mouth

[illegible]

Field Notes: Crayfish were present. Trout were stocked in Clinch River.

WR-C525

Coal Creek: Site # 1, Edge Surber sample

16 December 1986

Field # 026

Anderson Co., TN; Approx. 1.5 mi. upstream of the mouth.
Coordinates: 361300N - 840811W. Lake City, Tenn., # 137
NW Quad. Reach # 06010207-27,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	3
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	1
ISOPODA:	
Asellidae/ <u>Lirceus</u>	4
ODONATA:	
Coenagrionidae/ <u>Argia</u>	2
OLIGOCHAETA:	2
	<hr/>
	12

Volumetric Displacement was 0.25 ml.

Coal Creek: Site # 1, Midstream Surber sample

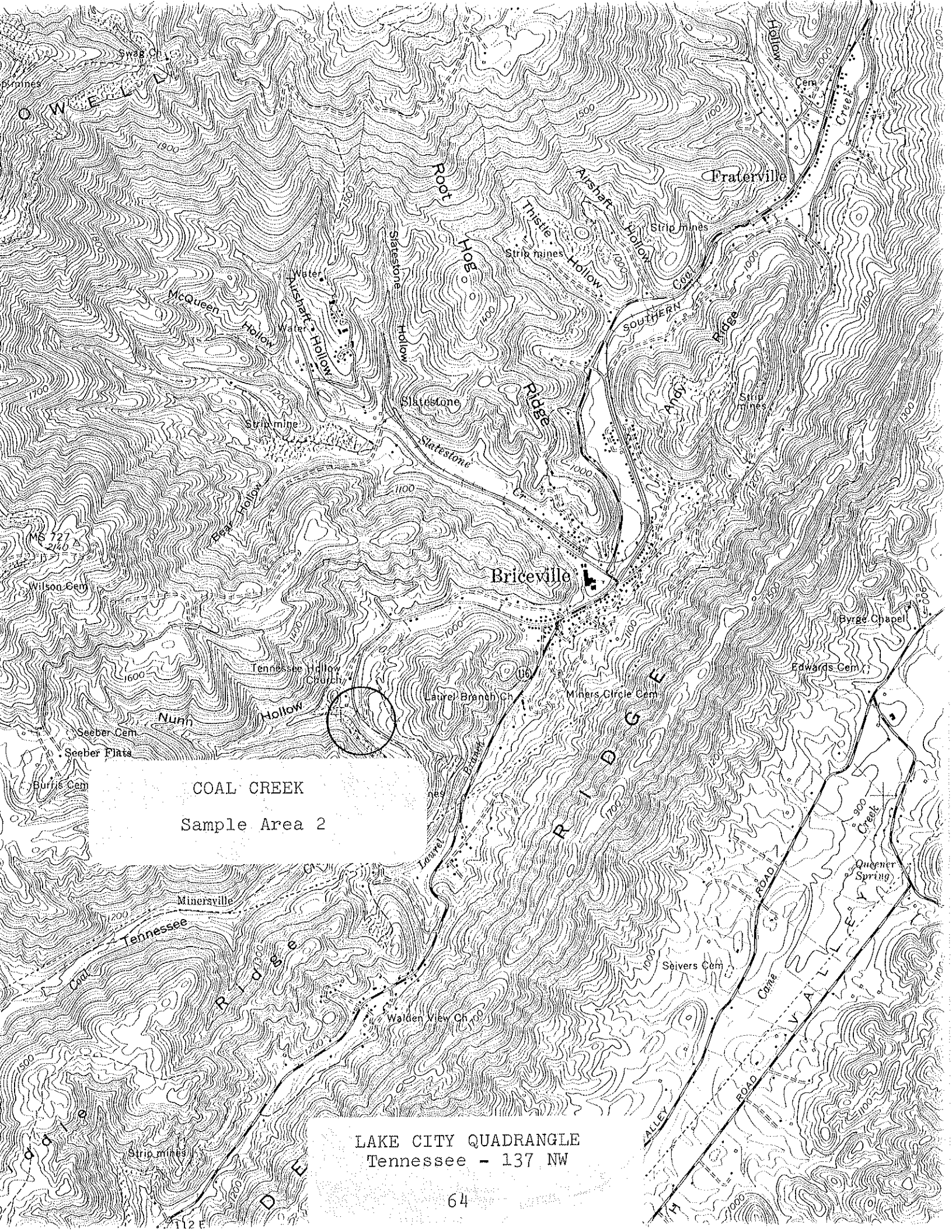
16 December 1986

Field # 026

Anderson Co., TN; Approx. 1.5 mi. upstream of the mouth.
Coordinates: 361300N - 840811W. Lake City, Tenn., # 137
NW Quad. Reach # 06010207-27,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
EPHEMEROPTERA:	
Ephemeridae/ <u>Ephemera</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalis</u> <u>cornutus</u>	1
OLIGOCHAETA:	6
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	2
	<hr/>
	11

Volumetric Displacement was 0.35 ml.



COAL CREEK
Sample Area 2

LAKE CITY QUADRANGLE
Tennessee - 137 NW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Clinch River Lat-Long 361015N - 841154W
Stream Coal Creek Length of Sample 400'
Area or Station Site # 2 Reach 06010207-27,0
County Anderson Date/Time 17 December 1986/1030
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 25' Average Depth 0.8' Maximum Depth 4.4'
2. Estimated Percent of Stream in Pools is 20 %.
3. Estimated Percent Pool Bottom is Mud - % Silt 20 % Sand 30 %
Clay - % Gravel 10 % Rubble 10 % Boulders 10 %
Bedrock 20 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 20 % Sand 30 %
Bedrock 20 % Other Rubble 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 20 %
of Stream, Average in 30 %, Poor in 50 %
7. Shade or Canopy Good over 50 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 15.2 : Flow compared to Normal: Low _____ Normal _____ High X
9. D.O. 11.5 ppm Temp. 46.4 °F % Saturation 95
10. Present Weather Cloudy and overcast with light rain, air temp. 48°F
11. Past Weather (last 24 hours) Partly cloudy and mild.
12. D.O. 11.5 pH 7.4 Temp. 46.4 Conductivity 240
13. Comments: Sample location at end of county road where jeep road
crosses the stream, above Briceville. Pools and habitat some-
what lacking for fish. Lot of rubbish along stream above Lake
City to Briceville. Coal fines present, siltation lighter than
lower stream section.

Site #2 - End of county
road above
Briceville

400' sample length

* Label Parameter Listed

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

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Coal Creek: Site # 2, Edge Surber sample

17 December 1986

Field # 027

Anderson Co., TN; Upstream of Briceville at end of county road. Coordinates: 361015N - 841154W. Lake City, Tenn., # 137 NW Quad. Reach # 06010207-27,0.

TAXA	NUMBER
DIPTERA:	
Athericidae/ <u>Atherix lantha</u>	1
Tipulidae/ <u>Antocha</u>	2
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	4
PLECOPTERA:	
Taeniopterygidae/ <u>Taeniopteryx</u>	8
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
TURBELLARIA:	1
	<hr/>
	17

Volumetric Displacement was 0.15 ml.

Coal Creek: Site # 2, Midstream Surber sample

17 December 1986

Field # 027

Anderson Co., TN; upstream of Briceville at end of county
road. Coordinates: 361015N - 841154W. Lake City, Tenn.,
137 NW Quad. Reach # 06010207-27,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	
PLECOPTERA:	
Taeniopterygidae/ <u>Taeniopteryx</u>	4
TRICHOPTERA:	
Glossosomatidae/ <u>Glossosoma</u>	1
	<hr/>
	6

Volumetric Displacement was 0.05 ml.

Powell River

Two qualitative fishery surveys were conducted in October 1986:

Location and Length - Sample area 1 was at Lonesome Valley Road access, Powell River mi. 52.0, and was sampled on 6 October 1986. The sample area was 300 ft. in length and averaged 126.8 ft. in width. Sample area 2 was at Buchanan Ford, Powell River mi. 99.3, and was sampled on 8 October 1986. The sample area was 400 ft. in length and averaged 138.5 ft. in width. Both sites were in Claiborne County. Area 1, Clouds Quadrangle. Area 2, Coleman Gap Quadrangle.

Gear Type - Both sites were sampled using both boat and backpack electrofishing equipment. A shocker boat was used where deeper water permitted and shallow riffle areas were sampled with either a backpack shocker alone (Area 2) or a backpack shocker in combination with a 10 ft. seine (Area 1).

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 6 October 1986: DO - 10 ppm, pH - 7.9, Temperature 70.7 F, Conductivity - 293 micromhos/cm. Area 2, on 8 October 1986: DO - 9.5 ppm, pH - 7.8, Temperature - 65.8 F, Conductivity - 318 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 49 organisms, 0.6 ml. volumetric displacement, and represented 17 different taxa. Area 2 averaged 215 organisms, 0.5 ml. volumetric displacement, and represented 14 different taxa.

Fish Collected:

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Smallmouth bass	8	2.0	0.75	2.2	2	0.4	0.1	0.3
Spotted bass	4	1.0	1.5	4.4	1	0.2	0.2	0.6
Rock bass	13	3.3	1.3	3.8	6	1.2	0.6	1.9
Bluegill	34	8.5	0.3	0.9				
Redbreast sunfish	4	1.0	0.05	0.1				
Longear sunfish					11	2.3	0.3	0.9
Nongame Fish	40	10.0	27.4	79.9	36	7.1	29.0	91.1
Forage Fish	296	74.2	3.0	8.7	453	88.9	1.65	5.2
Total	399		34.3		509		31.85	

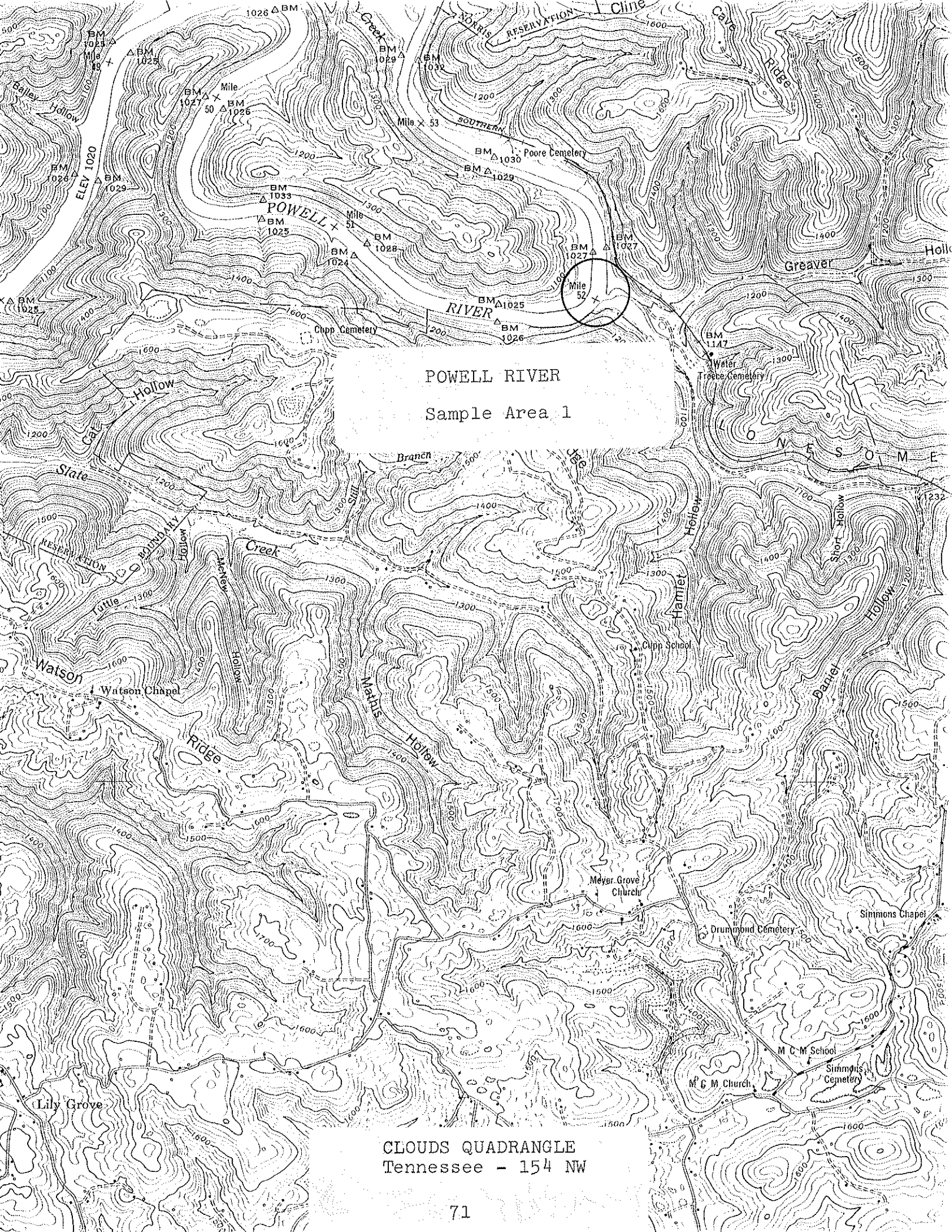
Comments:

Two areas of the Powell River were sampled primarily to update fishery data for the agency and collect stream information for TADS. One sample site was located just above Norris Reservoir while the other area was approximately 47 river miles upstream of the reservoir.

Game fish from both sites included smallmouth bass (*Micropterus dolomieu*), spotted bass (*M. punctulatus*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), and longear sunfish (*L. megalotis*). Smallmouth, spotted, and rock bass were collected from both sites while bluegill and redbreast sunfish were collected only from the downstream area and longear sunfish were collected only from the upper site. Numbers of game fish collected were low at both sites except for bluegill from the downstream site. Although our numbers were low, the Powell River is known to support a significant fishery for both smallmouth and rock bass. We collected a total of 43 fish species from both sites combined.

The Powell River has had a long history of pollution. In the early 1960s it was in an almost constant state of turbidity due to coal mining activities around the upper river in Virginia (TWRA unpublished information). In addition to siltation and coal fines, sewage from municipalities and private dwellings, acid mine drainage, and wildcat gravel dredging operations have also contributed to pollution problems of the Powell (Hylton 1984). Even though it has suffered significant pollution, the Powell River still supports several rare and endangered aquatic organisms and high priority should be given to protect it against further deterioration.

Benthic macroinvertebrates from our samples included Baetidae, Caenidae, Heptageniidae, Oligoneuriidae, Potamanthidae, and Tricorythidae mayflies, Hydropsychidae and Polycentropodidae caddisflies, elmids riffle beetles, and the perlid stoneflies *Neoperla clymene* and *Phasganophora capitata*. Asian clams (*Corbicula fluminea*) and river snails (*Anculosa subglobosa* and *Pleurocera unciata*) were also present.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Powell River Lat-Long 362855N - 834048W
Stream Powell River Length of Sample 300'
Area or Station Site # 1 Reach 06010206-6,3
County Claiborne Date/Time 6 October 1986/1515
Data Collected By Rick D. Bivens, David Lane, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 126.8' Average Depth 2.1' Maximum Depth 4.4'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 20 % Silt 30 % Sand 20 %
Clay 15 % Gravel 5 % Rubble 5 % Boulders 5 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 20 %
Bedrock 5 % Other Rubble 60%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 30 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 276.9 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 10.0 ppm Temp. 70.7 °F % Saturation 110
10. Present Weather Cloudy and cool.
11. Past Weather (last 24 hours) Partly cloudy turning cooler.
12. D.O. 10.0 pH 7.9 Temp. 70.7 Conductivity 293
13. Comments: Sample location at Powell River mi. 52.0. Curly leaf
pond weed along with other pond weeds present. Coal fines make
up a considerable amount of the substrate.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Powell River
mi. 52.0

Watershed Powell River Lat-Long 362855N - 834048W
 Body of Water Powell River Date 6 October 1986
 County or River Mile Claiborne Reach 06010206-6,3
 Type of Sampling Electrofishing Pool Elevation 1035'
 Gear Type Boat shocking & backpack Time 1400-1500
shocking into 10' seine.
300' sample length

SPECIES		CODE	NUMBER	LENGTH	WT.	*	*	*
Name								
<i>Ambloplites rupestris</i>		13	5	6	0.75			
"	"	"	5	5	0.4			
"	"	"	2	4	0.15			
"	"	"	1	2	t			
<i>Lepomis auritus</i>		201	4	2-4	0.05			
<i>Lepomis macrochirus</i>		206	1	5	0.1			
"	"	"	1	4	0.05			
"	"	"	2	3	t			
"	"	"	30	2	0.15			
<i>Micropterus dolomieu</i>		218	1	4	t			
"	"	"	3	5	0.15			
"	"	"	3	7	0.4			
"	"	"	1	8	0.2			
<i>Micropterus punctulatus</i>		219	1	14	1.5			
"	"	"	2	4	t			
"	"	"	1	3	t			
<i>Hypentelium nigricans</i>		166	7	5-15	4.2			
<i>Dorosoma cepedianum</i>		48	5	11-12	2.7			
<i>Moxostoma carinatum</i>		228	1	15	1.1			
<i>Moxostoma duquesnei</i>		229	18	5-17	15.6			
<i>Moxostoma erythrurum</i>		230	2	4	0.1			
<i>Moxostoma</i>								
<i>macrolepidotum</i>		231	7	6-15	3.7			
Continued on		next	page					

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-C525

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Powell River
mi. 52.0

Watershed Powell River Lat-Long 362855N - 834048W
 Body of Water Powell River Date 6 October 1986
 County or River Mile Claiborne Reach 06010206-6.3
 Type of Sampling Electrofishing Pool Elevation 1035'
 Gear Type Boat shocking & backpack Time 1400-1500
 shocking into 10' seine.
 300' sample length

SPECIES							
Name	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Campostoma anomalum</i>	25	46	2-6	1.4			
<i>Hybopsis amblops</i>	155	7	2-3	t			
<i>Hybopsis dissimilis</i>	157	14	3-5	0.2			
<i>Hybopsis insignis</i>	160	1	3	t			
<i>Notropis ariommus</i>	238	5	3	t			
<i>Notropis chrysocephalus</i>	249	16	2-3	0.1			
<i>Notropis coccogenis</i>	248	1	3	t			
<i>Notropis galacturus</i>	253	27	1-3	0.1			
<i>Notropis photogenis</i>	259	11	3-5	0.1			
<i>Notropis rubellus</i>	260	1	2	t			
<i>Notropis sp. cf.</i>							
<i>Notropis spectrunculus</i>	266	1	1	t			
<i>Notropis spilopterus</i>	269	14	1-3	t			
<i>Notropis whipplei</i>	278	2	4	0.05			
<i>Phenacobius uranops</i>	330	6	3-4	0.05			
<i>Pimephales notatus</i>	334	79	2-3	0.3			
<i>Etheostoma blennioides</i>	81	14	3-5	0.2			
<i>Etheostoma rufilineatum</i>	108	13	2-3	0.1			
<i>Etheostoma simoterum</i>	111	6	2	t			
<i>Etheostoma zonale</i>	135	7	2	t			
<i>Percina aurantiaca</i>	304	1	3	t			
<i>Percina caprodes</i>	306	16	3-6	0.4			
<i>Percina evides</i>	310	2	2	t			
<i>Cottus caroliniae</i>	40	2	1	t			
<i>Labidesthes sicculus</i>	189	4	3	t			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-C525

Powell River: Site # 1, Edge Surber sample

6 October 1986

Field # 015

Claiborne Co., TN; Lonesome Valley, Powell River mi. 52.0.
Coordinates: 362855N - 834048W. Clouds, Tenn., # 154 NW
Quad. Reach # 06010206-6,3.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	5
<u>Stenelmis</u> adults	2
DIPTERA:	
Chironomidae	4
Tipulidae/ <u>Antocha</u>	3
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenonema</u>	11
Potamanthidae/ <u>Potomanthus</u>	1
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	23
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	3
PLECOPTERA:	
Perlidae/ <u>Neoperla clymene</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	2
<u>Hydropsyche</u>	7
Polycentropodidae/ <u>Neureclipsis crepuscularis</u>	1
	67

Volumetric Displacement was 0.75 ml.

Powell River: Site # 1, Midstream Surber sample

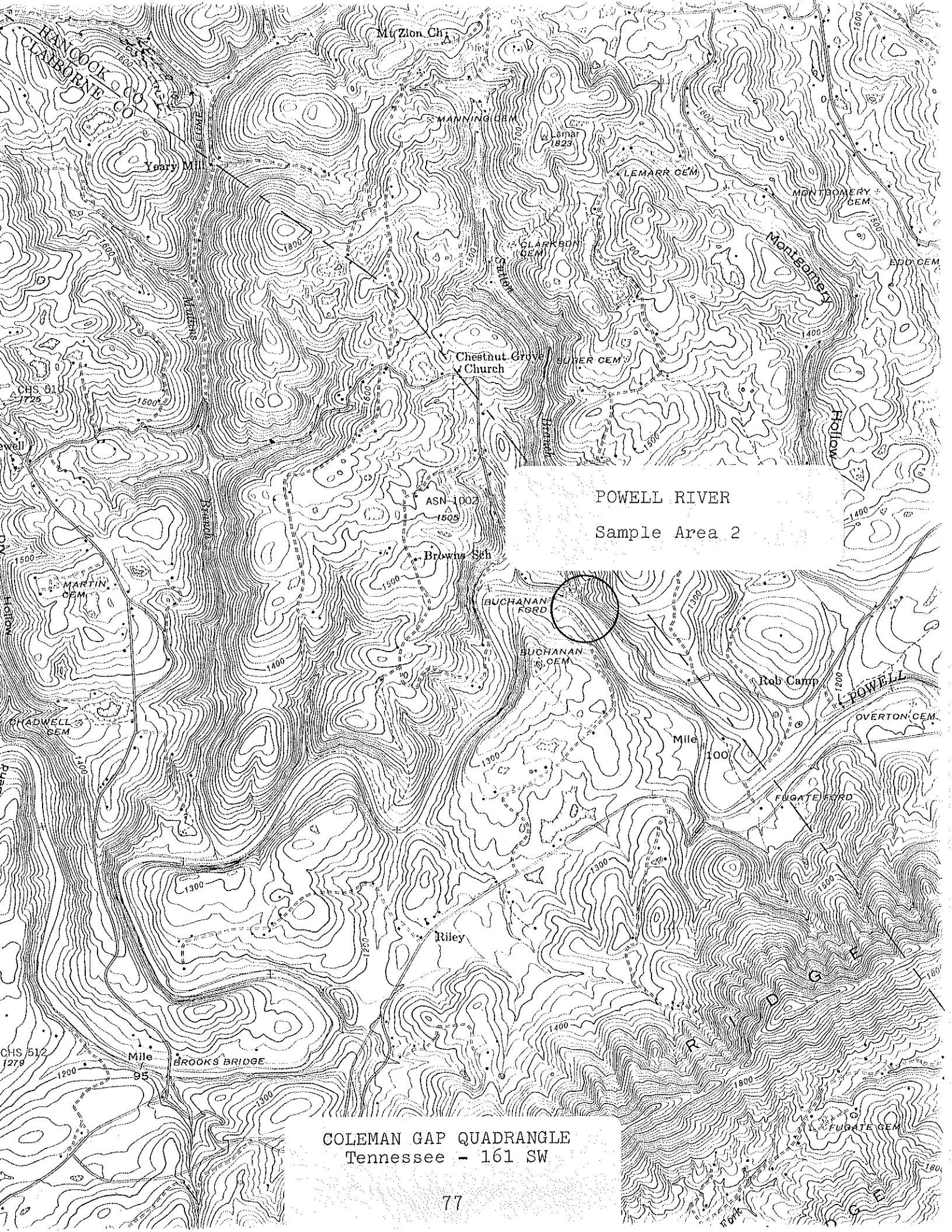
6 October 1986

Field # 015

Claiborne Co., TN; Lonesome Valley, Powell River mi. 52.0.
Coordinates: 362855N - 834048W. Clouds, Tenn., # 154 NW
Quad. Reach # 06010206-6,3.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	2
<u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Stenonema</u>	8
Tricorythidae/ <u>Tricorythodes</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera uncialis</u>	1
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	11
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	2
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	3
	<hr/>
	32

Volumetric Displacement was 0.5 ml.



POWELL RIVER
Sample Area 2

COLEMAN GAP QUADRANGLE
Tennessee - 161 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Powell River Lat-Long 363330N - 832522W
Stream Powell River Length of Sample 400'
Area or Station Site # 2 Reach 06010206-9,1
County Claiborne Date/Time 8 October 1986/1620
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 138.5' Average Depth 2.4' Maximum Depth 6.7'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 30 % Silt 30 % Sand 10 %
Clay 5 % Gravel 5 % Rubble 10 % Boulders 5 %
Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 20 %
Bedrock - % Other Rubble 65%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of Stream, Average in 40 %, Poor in 20 %
7. Shade or Canopy Good over 40 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 212.7 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.5 ppm Temp. 65.8°F % Saturation 100
10. Present Weather Clear and mild.
11. Past Weather (last 24 hours) Clear and mild.
12. D.O. 9.5 pH 7.8 Temp. 65.8 Conductivity 318
13. Comments: Sample location at Buchanan Ford, Powell River mi. 99.3.
Lots of silt and coal fines in stream. Habitat for game fish
was somewhat lacking in this particular sample area.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - Powell River
mi. 99.3

Watershed Powell River Lat-Long 363330N - 832522W
 Body of Water Powell River Date 8 October 1986
 County or River Mile Claiborne Reach 06010206-9,1
 Type of Sampling Electrofishing Pool Elevation 1145'
 Gear Type Boat shocking & backpack Time 1300-1500
shocking on riffle areas.
400' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
Ambloplites	rupestris	13	3	6	0.4			
"	"	"	2	5	0.15			
"	"	"	1	3	0.05			
Lepomis	megalotis	208	1	6	0.1			
"	"	"	1	5	0.1			
"	"	"	1	3	0.05			
"	"	"	8	2	0.05			
Micropterus	dolomieu	218	1	5	0.05			
"	"	"	1	4	0.05			
Micropterus	punctulatus	219	1	8	0.2			
Hypentelium	nigricans	166	6	3-13	2.1			
Dorosoma	cepedianum	48	6	11-13	3.9			
Lepisosteus	osseus	198	2	13-21	0.9			
Moxostoma	carinatum	228	4	17-26	11.8			
Moxostoma	duquesnei	229	11	3-15	5.65			
Moxostoma	erythrurum	230	3	9-14	2.4			
Moxostoma								
	macrolepidotum	231	4	3-15	2.25			
Camptostoma	anomalum	25	25	2-4	0.2			
Hybopsis	amblops	155	89	2-3	0.3			
Hybopsis	dissimilis	157	9	3-4	0.1			
Nocomis	micropogon	234	3	3-6	0.15			
Continued on	next	page						

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-G525

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - Powell River
mi. 99.3

Watershed Powell River Lat-Long 363330N - 832522W
 Body of Water Powell River Date 8 October 1986
 County or River Mile Claiborne Reach 06010206-9,1
 Type of Sampling Electrofishing Pool Elevation 1145'
 Gear Type Boat shocking & backpack shocking on riffle areas. Time 1300-1500
400' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Notropis ariommus</i>		238	20	2-4	0.1			
<i>Notropis chrysocephalus</i>		249	42	1-6	0.25			
<i>Notropis coccogenis</i>		248	3	2-4	t			
<i>Notropis galacturus</i>		253	7	1-5	0.05			
<i>Notropis leuciodus</i>		255	11	2-3	t			
<i>Notropis photogenis</i>		259	2	3	t			
<i>Notropis rubellus</i>		260	4	1-2	t			
<i>Notropis sp. cf.</i>								
<i>Notropis spectrunculus</i>		266	12	1-2	t			
<i>Notropis spilopterus</i>		269	10	1-3	t			
<i>Notropis telescopus</i>		272	35	2	0.1			
<i>Notropis volucellus</i>		277	59	1-2	0.1			
<i>Phenacobius uranops</i>		330	1	3	t			
<i>Pimephales notatus</i>		334	54	1-3	0.1			
<i>Etheostoma blennioides</i>		81	8	2-4	0.1			
<i>Etheostoma jessiae</i>		96	1	2	t			
<i>Etheostoma rufilineatum</i>		108	23	1-2	t			
<i>Etheostoma simoterum</i>		111	2	2	t			
<i>Etheostoma zonale</i>		135	11	2	t			
<i>Percina caprodes</i>		306	3	3-5	0.1			
<i>Percina evides</i>		310	13	2-3	t			
<i>Percina sciera</i>		317	1	3	t			
<i>Cottus carolinae</i>		40	5	2-3	t			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Powell River: Site # 2, Edge Surber sample

8 October 1986

Field # 016

Claiborne Co., TN; Buchanan Ford, Powell River mile 99.3.
Coordinates: 363330N - 832522W. Coleman Gap, Tenn.,
161 SW Quad. Reach # 06010206-9,1

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
<u>Stenelmis</u> adults	8
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	5
Oligoneuriidae/ <u>Isonychia</u>	16
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	158
<u>Pleurocera unciala</u>	2
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	7
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
	<hr/>
	200

Volumetric Displacement was 0.5 ml.

Powell River: Site # 2, Midstream Surber sample

8 October 1986

Field # 016

Claiborne Co., TN; Buchanan Ford, Powell River mile 99.3.
Coordinates: 363330N - 832522W. Coleman Gap, Tenn.,
161 SW Quad. Reach # 06010206-9,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
<u>Stenelmis</u> adults	3
DIPTERA:	
Tipulidae/ <u>Antocha</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Heptageniidae/ <u>Stenacron</u>	2
<u>Stenonema</u>	2
Oligoneuriidae/ <u>Isonychia</u>	7
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	178
MEGALOPTERA:	
Corydalidae/ <u>Corydalis cornutus</u>	1
ODONATA:	
Coenagrionidae	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	26
PLECOPTERA:	
Perlidae/ <u>Phasganophora capitata</u>	2
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	6
	<hr/>
	230

Volumetric Displacement was 0.5 ml.

Gap Creek

One qualitative fishery survey was conducted in August 1987:

Location and Length - Tributary to the Powell River. The sample area was located about 0.2 mi. downstream from Tiprell and was sampled on 7 August 1987. It was 300 ft. in length and averaged 11.6 ft. in width. The site was in Claiborne County. Middlesboro South Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers, operating side by side at 110 v. AC, were used.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and a Cole Parmer Pocket pH meter. On 7 August 1987: DO - 6.7 ppm, pH - 8.2, Temperature - 70.5 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 77 organisms, 1.4 ml. volumetric displacement, and represented 14 different taxa.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rock bass	36	6.9	7.2	43.6
Nongame Fish	13	2.5	4.1	24.8
Forage Fish	474	90.6	5.2	31.5
Total	523		16.5	

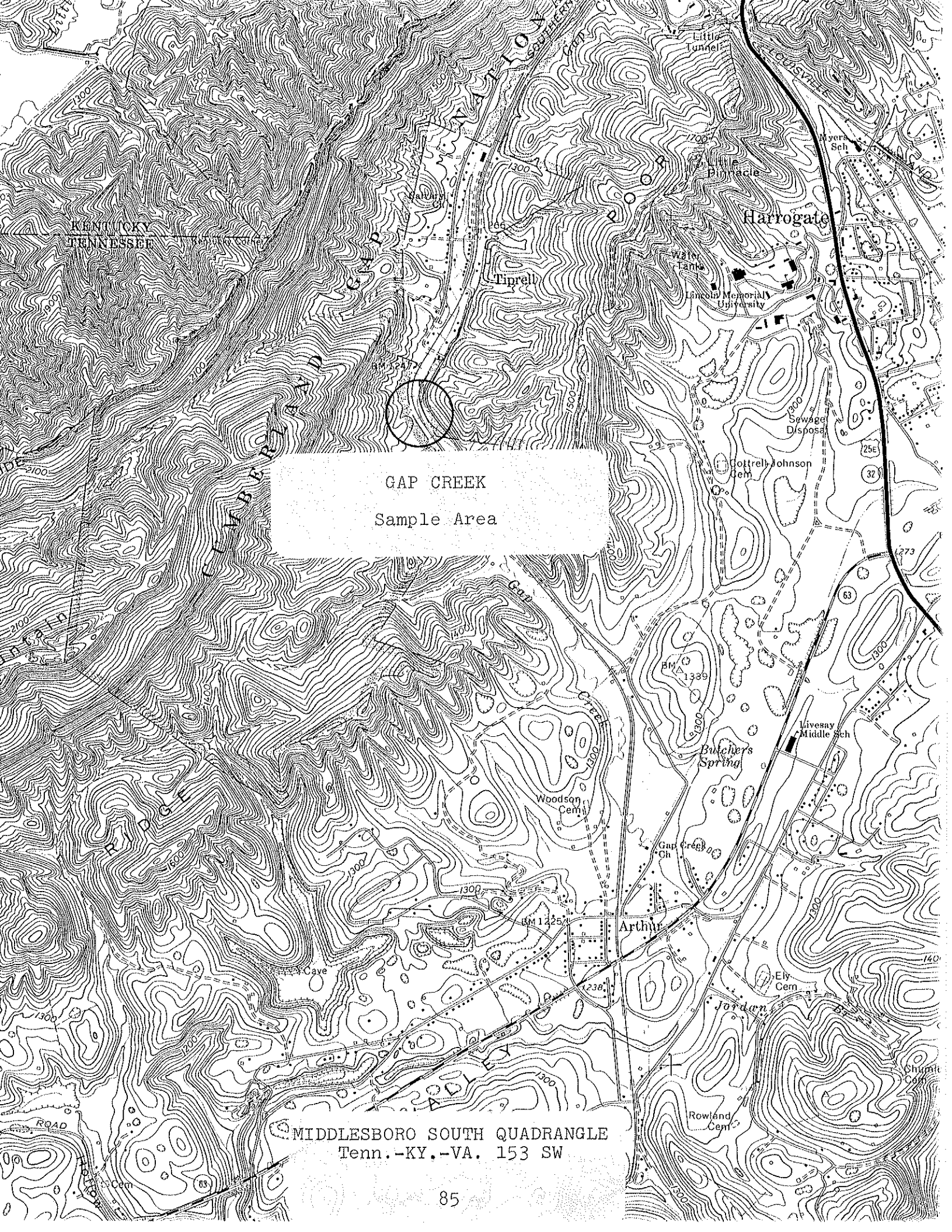
Comments - This stream was surveyed primarily to assess its potential for trout, to develop a fish species diversity list, and collect stream information for TADS. At the site sampled, the water was near the upper limit of temperature preferred by trout. Also the stream is fairly silty and sporadic trash dumping occurs along the stream course. Municipal wastes from the town of Cumberland Gap and pollutants from septic drain fields around Tiprell are likely to be impacting this stream to some extent also.

Rock bass (*Ambloplites rupestris*) were the only game fish collected and the stream appears to support a good population.

Almost 70% of the rock bass collected were greater than 6 in. and one was in the 10 in. class. A total of 10 fish species was collected, most of which are species components of streams that exhibit typical non-point-source pollution.

Benthic macroinvertebrates from our samples included representatives of Ephemeridae and Heptageniidae mayflies, Hydropsychidae and Limnephilidae caddisflies, and Elmidae and Psephenidae beetles. River snails (*Goniobasis simplex* and *Pleurocera unciata*) were also present.

In September, 1987, approximately 500 Owhi strain brook trout (*Salvelinus fontinalis*) were stocked in upper Gap Creek. The fish averaged about 7 in. and were stocked from the culvert at the railroad crossing in the town of Cumberland Gap downstream to the Cumberland Gap National Historical Park boundary. This upstream section appeared to be less impacted by pollution and water temperatures varied from 59 F at the culvert to 61 F at the park boundary. A follow-up check should be made to document the outcome of this stocking. If the Owhi strain survives, possibly the native strain brook trout could be transplanted in upper Gap Creek to help expand the range of the native trout.



GAP CREEK
Sample Area

MIDDLESBORO SOUTH QUADRANGLE
Tenn.-KY.-VA. 153 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Powell River Lat-Long 363427N - 834055W
Stream Gap Creek Length of Sample 300'
Area or Station Below Tiprell Reach 06010206-
County Claiborne Date/Time 7 August 1987/1000
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 11.6' Average Depth 0.3' Maximum Depth 1.7'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 20 % Sand 20 %
Clay 5 % Gravel 10 % Rubble 30 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 20 % Sand 20 %
Bedrock - % Other Rubble 30% Gravel 15% Boulders 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 60 %
of stream, Average in 20 %, Poor in 20 %.
7. Shade or Canopy Good over 90 % of Stream.
8. Flow (c.f.s.) 4.5 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 6.7 ppm Temp. 70.5 °F % Saturation 76.5
10. Present Weather Warm and overcast; air temp. - 75 °F.
11. Past Weather (last 24 hours) Hot with thunderstorms.
- ** 12. D.O. 6.7 pH 8.2 Temp. 70.5 Conductivity -
13. Comments: Sample location just below Tiprell (c.a. 0.2 mi.).
* Taken with YSI meter. ** Taken with pocket pH meter. The
stream is fairly silty and trash dumping occurs along the stream
course.

Gap Creek: Edge Surber sample

7 August 1987

Field # 057

Claiborne Co., TN; About 0.2 mi. downstream from Tiprell.
Coordinates: 363427N - 834055W. Middlesboro South, Tenn.-
KY.-VA., # 153 SW Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	10
<u>Stenelmis</u> larvae	5
adult	1
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	8
EPHEMEROPTERA:	
Heptageniidae/ <u>Heptagenia</u>	5
<u>Stenacron</u>	6
<u>Stenonema</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	14
<u>Pleurocera</u> <u>unciale</u>	12
ISOPODA:	
Asellidae/ <u>Lirceus</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	5
TRICHOPTERA:	
Limnephilidae/ <u>Neophylax</u>	20
	<hr/>
	89

Volumetric Displacement was 1.75 ml.

Gap Creek: Midstream Surber sample

7 August 1987

Field # 057

Claiborne Co., TN; About 0.2 mi. downstream from Tiprell.
Coordinates: 363427N - 834055W. Middlesboro South, Tenn.-
KY.-VA., # 153 SW Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adult	1
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	5
EPHEMEROPTERA:	
Ephemeridae/ <u>Ephemera</u>	1
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenacron</u>	8
<u>Stenonema</u>	4
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	3
<u>Pleurocera</u> <u>unciale</u>	2
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	2
ODONATA:	
Gomphidae (early instar)	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	2
Limnephilidae/ <u>Neophylax</u>	35
	<hr/>
	65

Volumetric Displacement was 1.0 ml.

Station Creek

One qualitative fishery survey was conducted in August 1987:

Location and Length - Tributary to Indian Creek (Powell River tributary). The sample area was located approximately 0.8 mi. upstream of the mouth, along Highway 63 where the road turns away from the stream, and was sampled on 7 August 1987. It was 300 ft. in length and averaged 28.1 ft. in width. The site was in Claiborne County. Wheeler Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers, operating side by side at 110 v. AC, were used.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and a Cole Parmer Pocket pH meter. On 7 August 1987: DO - 14.7 ppm, pH - 8.8, Temperature - 68.9 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 85 organisms, 0.9 ml. volumetric displacement, and represented 21 different taxa.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	2	0.2	t	
Smallmouth bass	1	0.1	t	
Rock bass	27	2.3	3.85	17.2
Bluegill	1	0.1	0.15	0.7
Nongame Fish	18	1.6	1.45	6.5
Forage Fish	1112	95.8	16.98	75.7
Total	1161		22.43	

Comments - This stream was surveyed primarily to assess its potential for trout, to develop a fish species diversity list, and collect stream information for TADS.

Rock bass (*Ambloplites rupestris*) were the primary game fish present. One smallmouth bass (*Micropterus dolomieu*) and 1 bluegill (*Lepomis macrochirus*) were also collected. A total of 20 species was collected from the sample area and of the

forage species, the central stoneroller (*Campostoma anomalum*) represented almost 50% of the total number and about 80% of the total weight collected.

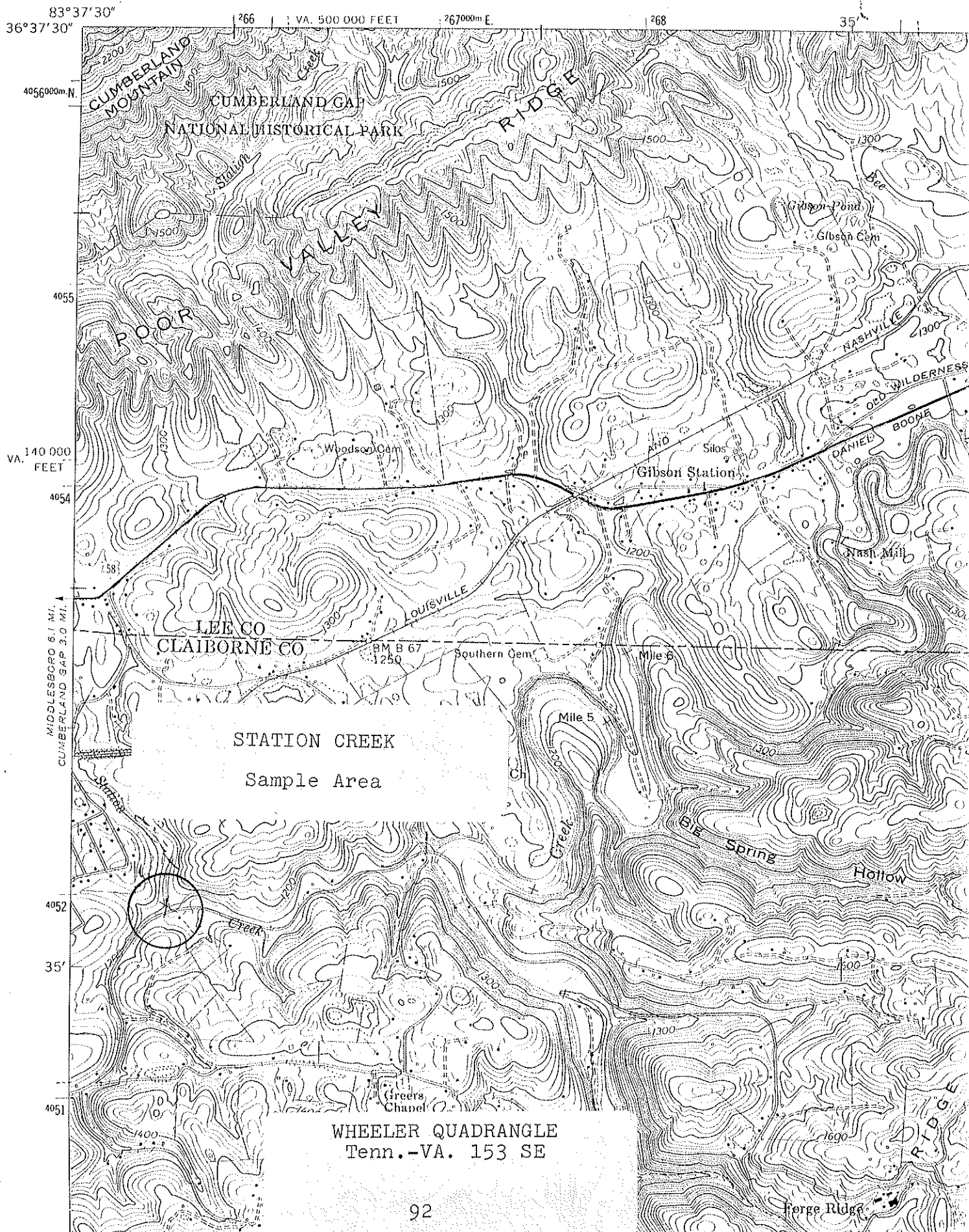
It is interesting to note the occurrence of the rainbow darter (*Etheostoma caeruleum*) and the northern studfish (*Fundulus catenatus*) in this stream. The rainbow darter is not very common in east Tennessee, its distribution is sporadic in the Ridge and Valley and above Knoxville is known from only a few localities in the Clinch/Powell and upper Holston river systems (Etnier and Starnes 1980). The northern studfish also occurs sporadically in Ridge and Valley streams.

Benthic macroinvertebrates from our samples included representatives of Baetidae, Heptageniidae, and Oligoneuriidae mayflies, Glossosomatidae, Hydropsychidae, Hydroptilidae, Limnephilidae and Philopotamidae caddisflies, and Elmidae and Psephenidae beetles. River snails (*Goniobasis simplex* and *Pleurocera uncialis*) were abundant.

The stream appeared to have only very light siltation pollution and riffle and fine gravel substrate areas were very clean. Lots of moss occurred on the rocks and water cress was very abundant. The stream appears capable of supporting trout and two rainbow trout (*Salmo gairdneri*) from a stocking of about 200 fish in June of 1987 were recovered. The rainbow trout were 1.5 in. when stocked and the ones we collected had about doubled in length in the two month period. Due to water temperature approaching 70 F in August and the large number of stoneroller minnows available for forage, the stream appeared more suitable for brown trout (*S. trutta*). Therefore, approximately 500 brown trout averaging about 7 in. were stocked on 22 September 1987.

4257 II NW
(MIDDLESBORO
NORTH)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Powell River Lat-Long 363509N - 833712W
Stream Station Creek Length of Sample 300'
Area or Station Along Hwy. #63 Reach 06010206-
County Claiborne Date/Time 7 August 1987/1345
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 28.1' Average Depth 0.7' Maximum Depth 3' est.
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 20 % Sand 20 %
Clay - % Gravel 10 % Rubble 35 % Boulders 5 %
Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 20 % Sand 20 %
Bedrock 10 % Other Gravel 10% Rubble 30% Boulders 10%
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of stream, Average in 25 %, Poor in 25 %.
7. Shade or Canopy Good over 75 % of Stream.
8. Flow (c.f.s.) 11.0 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 14.7 ppm Temp. 68.9 °F % Saturation 165.4
10. Present Weather Partly cloudy, hot, and humid; air temp. - 80°F.
11. Past Weather (last 24 hours) Hot and humid, some thunderstorms.
- ** 12. D.O. 14.7 pH 8.8 Temp. 68.9 Conductivity -
13. Comments: Sample location approximately 0.8 mi. above the mouth
along hwy. 63, where stream turns away from the road. * Taken
with YSI meter. ** Taken with pocket pH meter. Lots of moss and
water cress present. Riffles and gravel substrate areas very clean.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Powell River Lat-Long 363509N - 833712W
 Body of Water Station Creek Date 7 August 1987
 County or River Mile Claiborne Reach 06010206-
 Type of Sampling Electrofishing Pool Elevation 1160'
 Gear Type Two backpack shockers side Time 1445-1545
by side @ 110v. AC.

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Salmo gairdneri</i>		353	2	3	t			
<i>Ambloplites rupestris</i>		13	3	8	1.1			
"	"	"	4	7	0.95			
"	"	"	9	6	1.35			
"	"	"	4	5	0.3			
"	"	"	4	3	0.1			
"	"	"	3	2	0.05			
<i>Micropterus dolomieu</i>		218	1	3	t			
<i>Lepomis macrochirus</i>		206	1	5	0.15			
<i>Catostomus commersoni</i>		32	6	4-8	0.65			
<i>Hypentelium nigricans</i>		166	12	2-9	0.8			
<i>Camptostoma anomalum</i>		25	527	1-7	14.65			
<i>Hybopsis amblops</i>		155	5	3	t			
<i>Nocomis micropogon</i>		234	1	2	t			
<i>Notropis coccoensis</i>		248	36	1-4	0.1			
<i>Notropis chrysocephalus</i>		249	37	1-5	0.4			
<i>Notropis spilopterus</i>		269	1	2	t			
<i>Notropis telescopus</i>		272	22	2-3	0.05			
<i>Rhinichthys atratulus</i>		351	373	1-4	1.4			
<i>Semotilus atromaculatus</i>		360	1	1	t			
<i>Etheostoma blennioides</i>		81	1	4	t			
<i>Etheostoma caeruleum</i>		84	6	1-2	t			
<i>Etheostoma simoterum</i>		111	52	1-2	0.1			
<i>Cottus caroliniae</i>		40	49	1-4	0.28			
<i>Fundulus catenatus</i>		137	1	3	t			

* Label Parameter Listed

Field Notes: The rainbow trout were stocked on 3 June 1987. Approximately 200, 1.5 in. rainbows and 50, 4.0 in. browns were stocked.

Name of Collector(s): Rick D. Bivens, Chester J. Ellison & Rick Sandifer

WR-C525

Station Creek: Edge Surber sample

7 August 1987

Field # 058

Claiborne Co., TN; About 0.8 mi. upstream of the mouth.
Coordinates: 363509N - 833712W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	6
<u>Promoresia</u> <u>tardella</u> larvae	2
<u>Stenelmis</u> larvae	8
adults	3
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	8
DIPTERA:	
Chironomidae	1
Empididae	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Heptageniidae/ <u>Stenacron</u>	1
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	22
<u>Pleurocera</u> <u>unciale</u>	15
HETEROPTERA:	
Veliidae/ <u>Microvelia</u>	1
ISOPODA:	
Asellidae/ <u>Lirceus</u>	11
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	1
TRICHOPTERA:	
Glossosomatidae/ <u>Glossosoma</u>	3
Hydropsychidae/ <u>Cheumatopsyche</u>	2
<u>Hydropsyche</u> <u>betteni</u> / <u>depravata</u>	3
Limnephilidae/ <u>Neophylax</u>	5
Philopotamidae/ <u>Chimarra</u>	5
	<hr/>
	100

Volumetric Displacement was 1.0 ml.

Station Creek: Midstream Surber sample

7 August 1987

Field # 058

Claiborne Co., TN; About 0.8 mi. upstream of the mouth.
Coordinates: 363509N - 833712W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	4
<u>Promoresia</u> <u>tardella</u> larvae	8
<u>Stenelmis</u> larvae	3
adult	1
Psphenidae/ <u>Psphenus</u> <u>herricki</u>	6
DIPTERA:	
Chironomidae	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	4
<u>Pleurocera</u> <u>unciale</u>	14
ISOPODA:	
Asellidae/ <u>Lirceus</u>	5
ODONATA:	
Aeshnidae/ <u>Boyeria</u>	1
TRICHOPTERA:	
Hydropsychidae/early instars	3
<u>Hydropsyche</u> <u>betteni</u> / <u>depravata</u>	7
Hydroptilidae/ <u>Hydroptila</u>	4
Limnephilidae/ <u>Neophylax</u>	8
	70

Volumetric Displacement was 0.75 ml.

Little Creek

One qualitative fishery survey was conducted in September 1987:

Location and Length - Tributary to the Powell River. This sample area was located at Little Creek Church and was sampled on 18 September 1987. It was 300 ft. in length and averaged 14.3 ft. in width. The site was in Claiborne County, Wheeler Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. One shocker, operating at 350 v. AC, was used.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and a Cole Parmer Pocket pH meter. On 18 September 1987: DO - 10.2 ppm, pH - 8.2, Temperature - 62.6 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 85 organisms, 1.1 ml. volumetric displacement, and represented 23 different taxa.

Fish Collected:

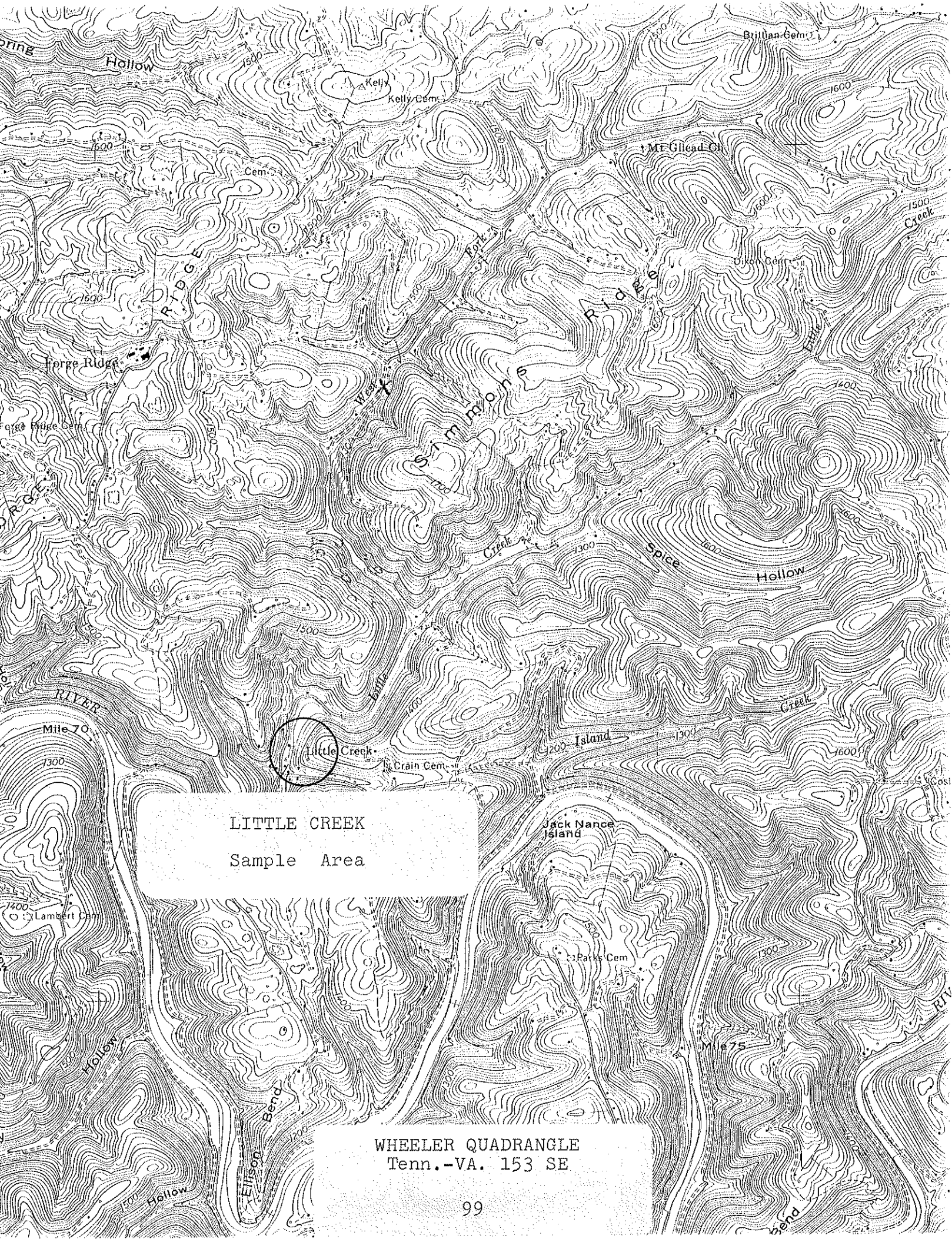
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rock bass	6	0.9	1.3	14.3
Smallmouth bass	1	0.2	t	
Nongame Fish	6	0.9	1.1	12.1
Forage Fish	646	98.0	6.7	73.6
Total	659		9.1	

Comments - This stream was surveyed primarily to assess its potential for possible translocation of the native brook trout (*Salvelinus fontinalis*), to develop a fish species diversity list, and collect stream information for TADS.

Rock bass (*Ambloplites rupestris*) were the only game fish collected with the exception of one 3 in. smallmouth bass (*Micropterus dolomieu*). The warpaint shiner (*Notropis coccogenis*) and the striped shiner (*N. chrysocephalus*) made up 45% of the total number of nongame fish collected. A total of 17 fish species was collected from the site.

Benthic macroinvertebrates from our samples included representatives of Heptageniidae and Oligoneuriidae mayflies, Glossosomatidae, Hydropsychidae, Limnephilidae, Philopotamidae, and Psychomyiidae caddisflies, perlid stoneflies, and Elmidae and Psephenidae beetles. River snails (*Goniobasis simplex* and *Pleurocera uncialis*) were present and abundant.

This is a very clean stream with little apparent non-point-source siltation. In late September 1987, approximately 500 Owhi strain brook trout were stocked. These fish averaged about 7 to 8 in. and were stocked from Little Creek Church upstream for about 1.25 mile. A follow-up check should be made to document the outcome of the stocking. If the Owhi strain survives, possibly the native strain brook trout could be transplanted in Little Creek to help expand the range of the native trout.



LITTLE CREEK

Sample Area

WHEELER QUADRANGLE
Tenn.-VA. 153 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Powell River Lat-Long 363315N - 833417W
Stream Little Creek Length of Sample 300'
Area or Station Little Cr. Church Reach 06010206-
County Claiborne Date/Time 18 September 1987/0800
Data Collected By Chester J. Ellison and Rick Sandifer

B. PHYSICAL CHARACTERISTICS

1. Average Width 14.3' Average Depth 0.4' Maximum Depth 1.25'
2. Estimated Percent of Stream in Pools is 25 %
3. Estimated Percent Pool Bottom is Mud 2 % Silt 3 % Sand 15 %
Clay 2 % Gravel 28 % Rubble 25 % Boulders 15 %
Bedrock 10 % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 45 %
Bedrock 15 % Other Rubble 25%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 35 %
of stream, Average in 25 %, Poor in 40 %.
7. Shade or Canopy Good over 60 % of Stream.
8. Flow (c.f.s.) 4.8 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 10.2 ppm Temp. 62.6 °F % Saturation 104.6
10. Present Weather Cloudy
11. Past Weather (last 24 hours) Fair
- ** 12. D.O. 10.2 pH 8.2 Temp. 62.6 Conductivity -
13. Comments: Sample location directly behind Little Creek Church.
* Taken with YSI. ** Taken with Cole Parmer pocket pH meter.
Stream condition looks good due to the low silt. Shelter some-
what lacking due to the low flow condition of the stream.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Powell River Lat-Long 363315N - 833417W
 Body of Water Little Creek Date 18 September 1987
 County or River Mile Claiborne Reach 06010206-
 Type of Sampling Electrofishing Pool Elevation 1115'
 Gear Type Backpack shocker, one Time 0930-1045
 shocker @ 350 v. AC.

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Ambloplites rupestris</i>	13	1	5	0.1			
" "	"	2	6	0.3			
" "	"	1	7	0.2			
" "	"	1	8	0.3			
" "	"	1	9	0.4			
<i>Micropterus dolomieu</i>	218	1	3	t			
<i>Hypentelium nigricans</i>	166	6	3-12	1.1			
<i>Camptostoma anomalum</i>	25	96	2-5	1.6			
<i>Hybopsis amblops</i>	155	22	3	0.18			
<i>Nocomis micropogon</i>	234	2	6	0.2			
<i>Notropis coecogenis</i>	248	185	2-5	1.0			
<i>Notropis chrysocephalus</i>	249	110	2-7	2.1			
<i>Notropis galacturus</i>	253	4	2-3	t			
<i>Notropis leuciodus</i>	255	5	2-3	t			
<i>Notropis spilopterus</i>	269	6	2-3	t			
<i>Notropis telescopus</i>	272	84	2-3	0.3			
<i>Rhinichthys atratulus</i>	351	72	1-4	0.53			
<i>Pimephales notatus</i>	334	1	3	t			
<i>Etheostoma blennioides</i>	81	8	4	0.2			
<i>Etheostoma simoterum</i>	111	4	2-3	0.09			
<i>Cottus carolinae</i>	40	47	2-4	0.5			

* Label Parameter Listed

Field Notes: 300' sample length.

Name of Collector(s): Chester J. Ellison and Rick Sandifer

WR-C525

Little Creek: Edge Surber sample

18 September 1987

Field # 072

Claiborne Co., TN; Directly behind Little Creek Church.
Coordinates: 363315N - 833417W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	4
<u>Promoresia</u> <u>tardella</u> larva	1
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	13
DIPTERA:	
Chironomidae	3
Empididae pupa	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Epeorus</u> (<u>Iron</u>)	1
<u>Heptagenia</u>	3
<u>Stenacron</u>	8
<u>Stenonema</u>	4
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	9
<u>Pleurocera</u> <u>unciale</u>	4
ISOPODA:	
Asellidae/ <u>Lirceus</u>	41
PLECOPTERA:	
Perlidae/ <u>Acroneuria</u>	1
TRICHOPTERA:	
Glossosomatidae/ <u>Glossosoma</u> pupa	1
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Hydropsyche</u> <u>betteni/depravata</u>	1
<u>Symphitopsyche</u> <u>sparna</u>	1
Limnephilidae/ <u>Goera</u> (early instar)	1
<u>Neophylax</u> pupa	1
Philopotamidae/ <u>Dolophilodes</u> <u>distinctus</u>	1
Psychomyiidae/ <u>Psychomyia</u> <u>flavida</u>	1
	101

Volumetric Displacement was 1.25 ml.

Little Creek: Midstream Surber sample

18 September 1987

Field # 072

Claiborne Co., TN; Directly behind Little Creek Church.
Coordinates: 363315N - 833417W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
Psephenidae/ <u>Psephenus herricki</u>	13
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	3
<u>Stenonema</u>	6
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	10
<u>Pleurocera unciala</u>	2
ISOPODA:	
Asellidae/ <u>Lirceus</u>	21
PLECOPTERA:	
Unidentified adult	1
Perlidae/ <u>Paragnetina media</u>	2
TRICHOPTERA:	
Philopotamidae/ <u>Dolophilodes distinctus</u> larvae	6
pupa	1
	68

Volumetric Displacement was 1.0 ml.

West Fork

One qualitative fishery survey was conducted in September 1987:

Location and Length - Tributary to Little Creek (Powell River tributary). The sample area was located about 0.65 mi. SW of Highway 63 on Ramsey Hollow Road, at about 0.95 mi. upstream of the mouth, and was sampled on 18 September 1987. It was 125 ft. in length and averaged 7.7 ft. in width. The site was in Claiborne County. Wheeler Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. One shocker, operating at 350 v. AC, was used.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and a Cole Parmer Pocket pH meter. On 18 September 1987: DO - 8.9 ppm, pH - 8.3, Temperature - 67.1 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 74 organisms, 0.3 ml. volumetric displacement, and represented 16 different taxa.

Fish Collected:

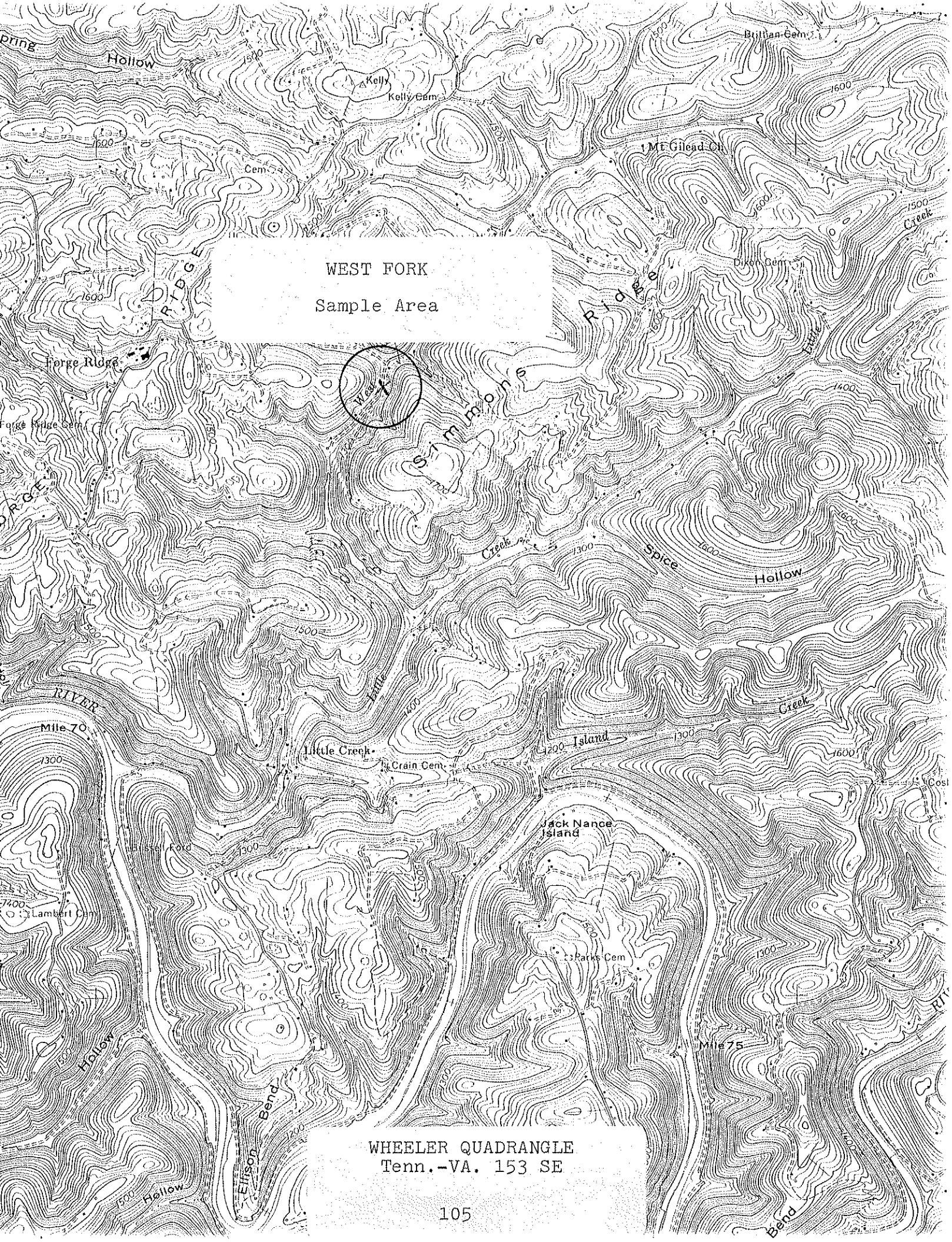
173 Forage fish weighing 0.9 lb.

Comments - This stream was surveyed primarily to assess its potential for possible translocation of the native brook trout (*Salvelinus fontinalis*), to develop a fish species diversity list, and collect stream information for TADS.

No game fish were collected at this site, only blacknose dace (*Rhinichthys atratulus*) and banded sculpin (*Cottus carolinae*) were found. About 0.4 mi. upstream of the sample site another area of the stream was checked. Here, six small rainbow trout (*Salmo gairdneri*) were collected along with blacknose dace, banded sculpin and a few central stonerollers (*Campostoma anomalum*).

Benthic macroinvertebrates from our samples included representatives of Baetidae, Heptageniidae, and Oligoneuriidae mayflies, Glossosomatidae, Hydropsychidae, and Limnephilidae caddisflies, Peltoperlidae stoneflies, and Elmidae and Psephenidae beetles. Periwinkle snails (*Goniobasis simplex*) were abundant.

This is a very clean stream with little apparent non-point-source siltation. In late September 1987, approximately 100 Owhi strain brook trout, 7 to 8 in. long, were stocked in the stream. A follow-up check should be made to document the outcome of the stocking.



WEST FORK
Sample Area

WHEELER QUADRANGLE
Tenn.-VA. 153 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Powell River Lat-Long 363418N - 833328W
Stream West Fork Length of Sample 125'
Area or Station 0.95 mi. above mouth Reach 06010206-
County Claiborne Date/Time 18 September 1987/1400
Data Collected By Chester J. Ellison and Rick Sandifer

B. PHYSICAL CHARACTERISTICS

1. Average Width 7.7' Average Depth 0.5' Maximum Depth 1.25'
2. Estimated Percent of Stream in Pools is 60 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 5 % Sand 15 %
Clay 5 % Gravel 25 % Rubble 15 % Boulders 5 %
Bedrock 25 % Other - %
4. Estimated Percent Riffle Bottom is Mud 2 % Silt 3 % Sand 15 %
Bedrock 65 % Other Rubble 15%
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 15 %
of stream, Average in 10 %, Poor in 75 %.
7. Shade or Canopy Good over 50 % of Stream.
8. Flow (c.f.s.) 2.2 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 8.9 ppm Temp. 67.1 °F % Saturation 97.4
10. Present Weather Fair
11. Past Weather (last 24 hours) Fair
- ** 12. D.O. 8.9 pH 8.3 Temp. 67.1 Conductivity -
13. Comments: Sample location about 0.65 mi. SW of Hwy. 63 on Ramsey
Hollow Road; and 0.95 mi. above the mouth. Shelter lacking in
the largest portion of the stream. * DO taken with YSI meter.

** pH taken with Cole Parmer pocket pH meter.

FISH FIELD DATA FORM

Watershed	<u>Powell River</u>	Lat-Long	<u>363418N - 833328W</u>
Body of Water	<u>West Fork</u>	Date	<u>18 September 1987</u>
County or River Mile	<u>Claiborne</u>	Reach	<u>06010206-</u>
Type of Sampling	<u>Electrofishing</u>	Pool Elevation	<u>1230'</u>
Gear Type	<u>Backpack shocker @ 350 v.</u>	Time	<u>1500-1530</u>
	<u>AC. 125' sample length.</u>		

[illegible]

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Chester J. Ellison and Rick Sandifer

WR-C525

FISH FIELD DATA FORM

Watershed <u>Powell River</u>	Lat-Long <u>363435N - 833340W</u>
Body of Water <u>West Fork</u>	Date <u>18 September 1987</u>
County or River Mile <u>Claiborne</u>	Reach <u>06010206-</u>
Type of Sampling <u>Electrofishing</u>	Pool Elevation <u>1280'</u>
Gear Type <u>Backpack shocker @ 350</u> <u>v. AC.</u>	Time <u>-----</u>

[illegible]

* Label Parameter Listed

Field Notes: Sample length was approx. 0.2 mi. and started at about 1.3 mi. above the mouth. *Rhinichthys atratulus*, *Cottus carolinae*, and 3 or 4

Name of Collector(s): *Campostoma anomalum* collected here also.

WR-C525

Chester J. Ellison and Rick Sandifer

West Fork: Edge Surber sample

18 September 1987

Field # 073

Claiborne Co., TN; About 0.95 mi. upstream of the mouth.
Coordinates: 363418N - 833328W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	16
<u>Stenelmis</u> adults	6
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	4
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Heptageniidae/ <u>Heptagenia</u>	1
Oligoneuriidae/ <u>Isonychia</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis</u> <u>simplex</u>	71
HETEROPTERA:	
Veliidae/ <u>Rhagovelia</u> <u>obesa</u>	1
TRICHOPTERA:	
Glossosomatidae/ <u>Glossosoma</u> pupa	1
Hydropsychidae/ <u>Cheumatopsyche</u>	1
Limnephilidae/ <u>Goera</u>	2
	<hr/>
	108

Volumetric Displacement was 0.4 ml.

West Fork: Midstream Surber sample

18 September 1987

Field # 073

Claiborne Co., TN; About 0.95 mi. upstream of the mouth.
Coordinates: 363418N - 833328W. Wheeler, Tenn.-VA.,
153 SE Quad. Reach # 06010206-.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adults	3
Psephenidae/ <u>Psephenus herricki</u>	4
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenonema</u>	4
Oligoneuriidae/ <u>Isonychia</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	20
ISOPODA:	
Asellidae/ <u>Lirceus</u>	1
PLECOPTERA:	
Peltoperlidae/ <u>Peltoperla</u>	3
TRICHOPTERA:	
Limnephilidae/ <u>Neophylax</u> pupa	1
	<hr/> 40

Volumetric Displacement was 0.25 ml.

Mullins Branch

One qualitative fishery survey was conducted in August 1987:

Location and Length - Tributary to the Powell River. The sample area was located approximately 0.1 mi. upstream of Yearly Road crossing and was sampled on 7 August 1987. It was 350 ft. in length and averaged about 12 ft. in width. The site was in Claiborne County. Coleman Gap Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers, operating side by side at 110 v. AC, were used.

Water Quality - Data were taken from midstream with a Cole Parmer Pocket pH meter and a hand held thermometer. On 7 August 1987: pH - 8.5, Temperature - 63.0 F.

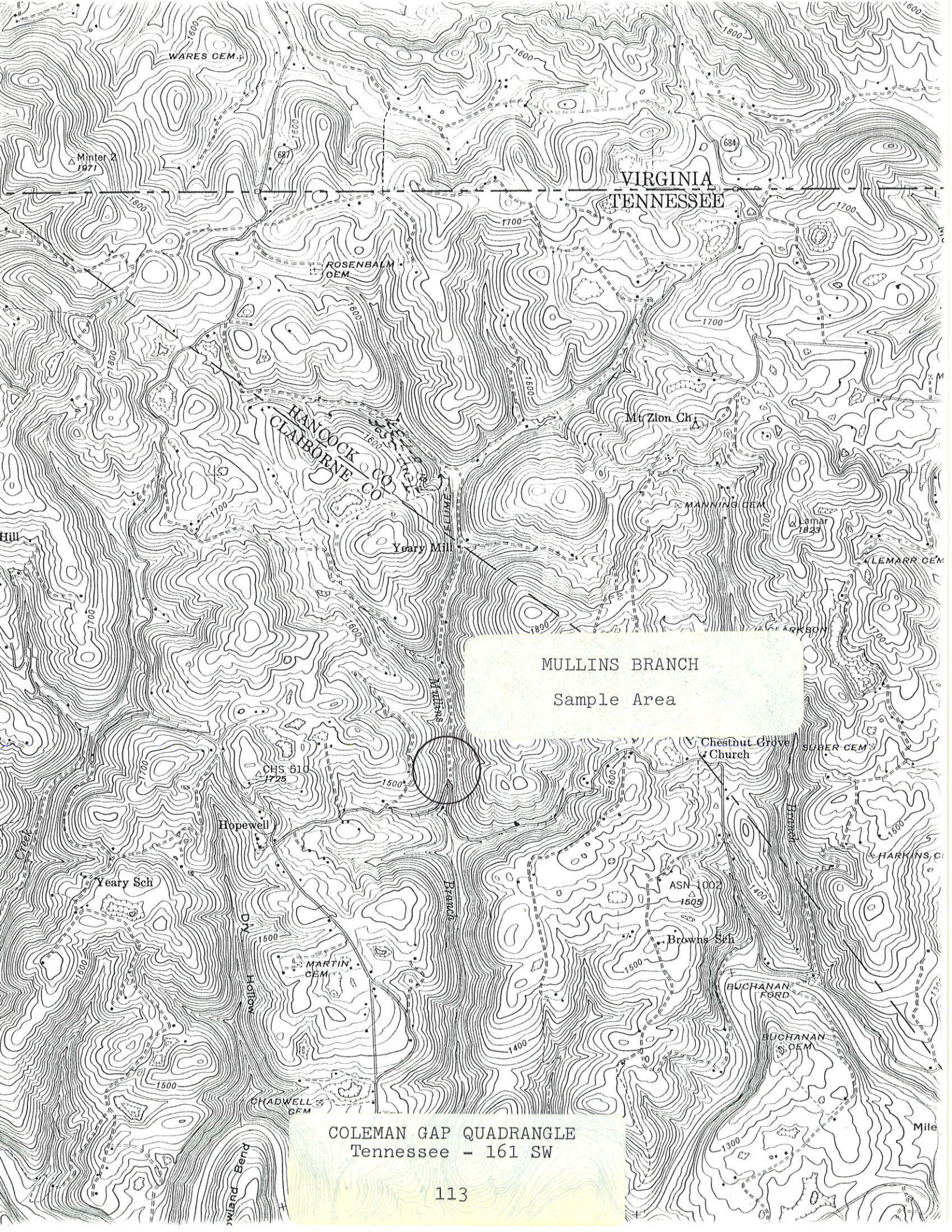
Benthos Collection - No collection was made.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	26	20.3	1.65	44.0
Nongame Fish				
Forage Fish	102	79.7	2.1	56.0
Total	128		3.75	

Comments - This stream was surveyed primarily to assess its potential for possible translocation of the native brook trout (*Salvelinus fontinalis*) and to develop a fish species diversity list for TADS. Rainbow trout (*Salmo gairdneri*) were the only game fish collected and the stream appears to support a healthy stream reproducing population. We have no former documentation of trout being present or record of trout ever being stocked in this stream. However, Mike Smith (former Claiborne County wildlife officer) stated that he knew rainbow trout were present there in 1979. A total of 6 forage fish species was collected with the banded sculpin (*Cottus carolinae*) being the most common.

The stream is very clean with only light siltation and the watershed is mostly forested land with little apparent disturbance. It is fed by several springs that head up the stream and account for the low water temperature. The beauty of the stream course and the size of the trout population could readily be compared to similar size streams in the Great Smoky Mountains National Park or Cherokee National Forest. However, small stream size greatly limits the potential for any significant fishery. Also, the presence of a well established rainbow trout population precludes any brook trout management.



COLEMAN GAP QUADRANGLE
Tennessee - 161 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Powell River Lat-Long 363407N - 832640W
Stream Mullins Branch Length of Sample 350'
Approx. 0.1 mi. above
Area or Station Yeary Rd. crossing Reach 06010206-
County Claiborne Date/Time 7 August 1987/1800
Data Collected By R.D. Bivens & C.J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 9'-13' Average Depth 0.3' est. Maximum Depth 2' est.
2. Estimated Percent of Stream in Pools is 45 %
3. Estimated Percent Pool Bottom is Mud - % Silt 5 % Sand 10 %
Clay - % Gravel 30 % Rubble 35 % Boulders 10 %
Bedrock 10 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 5 % Sand 10 %
Bedrock 5 % Other Gravel 30% Rubble 50%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 20 %, Poor in 40 %.
7. Shade or Canopy Good over 90 % of Stream.
8. Flow (c.f.s.) - : Flow compared to Normal: Low _____ Normal _____ High _____
9. D.O. - Temp. 63 °F % Saturation -
10. Present Weather Partly cloudy, hot, and humid.
11. Past Weather (last 24 hours) Hot and humid, some thunderstorms.
- * 12. D.O. - pH 8.5 Temp. 63 Conductivity -
13. Comments: Sample location was along the forest road approximately
0.1 mi. upstream of Yeary Road crossing. * Taken with pocket
pH meter. Appears to be a good little trout stream.

TENNESSEE WILDLIFE RESOURCES AGENCY

Lat-Long 363407N - 832640W

Date 7 August 1987

Reach 06010206-

Pool Elevation 1305'

Time 1830-1900

* Label Parameter Listed

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Rick Sandifer

Tellico River

Two qualitative and one quantitative fishery surveys were conducted in July and October 1987:

Location and Length - Sample area 1 was just downstream of Nars Ford, Tellico River mi. 21.65, and was sampled on 21 October 1987. The sample area was 400 ft. in length and averaged 73.8 ft. in width. Sample area 2 was just downstream of the mouth of Oosterneck Creek, Tellico River mi. 32.07, and was sampled on 6 October 1987. The sample area was 300 ft. in length and averaged 96.3 ft. in width. Sample area 3 was about 1 mi. upstream of the Tellico Trout Rearing Station, at Davis Creek Campground, and was sampled on 29 July 1987. It was 300 ft. in length and averaged 45.6 ft. in width. All three sites were in Monroe County. Site 1, Mount Vernon Quadrangle. Site 2, Bald River Falls Quadrangle. Site 3, Big Junction Quadrangle.

Gear Type - All three sites were sampled using backpack electro-fishing equipment. Sample area 1 was sampled using two shockers, operating side by side, at 350 v. AC, and also shocking into a 30 ft. seine on the riffle areas. Area 2 was sampled using five shockers, operating side by side, at 350 v. AC, and making three passes for a fish population estimation using a depletion estimator. Sample area 3 was sampled using two shockers, operating side by side, at 700 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab at site 1 and 2. Area 3 was sampled with a Model 58 YSI meter and a Hach Pocket pH meter. Area 1, on 21 October 1987: DO - 8.0 ppm, pH - 7.0, Temperature - 54.5 F, Conductivity - 108 micromhos/cm. Area 2, on 6 October 1987: DO - 10.0 ppm, pH - 7.3, Temperature - 52.7 F, Conductivity - 41 micromhos/cm. Area 3, on 29 July 1987: DO - 8.9 ppm, pH - 6.7, Temperature - 67.1 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 20 organisms, 0.25 ml. volumetric displacement, and represented 10 different taxa. Area 2 averaged 32 organisms, 0.4 ml. volumetric displacement, and represented 17 different taxa. Area 3 averaged 15 organisms, 0.8 ml. volumetric displacement, and represented 12 different taxa.

Fish Collected: (See accompanying tables)

Comments - Three areas of the Tellico River were sampled primarily to update fishery data for the agency and collect stream

information for TADS. One sample site was located in the trout water portion of the river and the other two were located in the lower reach, one upstream of Tellico Reservoir, the other upstream of Tellico Plains.

At the upstream area, we collected 38 rainbow trout (*Salmo gairdneri*) and 1 brown trout (*S. trutta*). A total of 5 fish species was collected from the site with trout comprising about 67% by numbers and 63% by weight of all fish collected. The water quality is generally excellent, and the river is the water source for the Tellico Trout Rearing Station.

At the sample area upstream of Tellico Plains, smallmouth bass (*Micropterus dolomieu*) and rock bass (*Ambloplites rupestris*) were the only game fish collected. The number of smallmouth bass was almost twice the number of rock bass collected, but rock bass comprised about 10% and smallmouth bass about 5% by weight of all fish collected. Population estimations were made at this site using a three-pass depletion method. Estimated number and weight per acre by species is presented in the accompanying table. A total of 19 fish species was collected from this site.

At the lower site, redbreast sunfish (*Lepomis auritus*) and bluegill (*L. macrochirus*) were the primary game fish collected by numbers. However, rock bass made up about 13%, while both bluegill and redbreast sunfish comprised only 11% of the total weight of all fish collected. A single 4 in. largemouth bass (*M. salmoides*) was also collected. In all a total of 30 fish species was collected from this site.

The upper portion of Tellico River from Turkey Creek to the North Carolina line is considered one of the state's prime trout streams and it is managed as such. Downstream from Turkey Creek to Tellico Reservoir, there is good fishing for smallmouth bass and rock bass. Based on our recent surveys, rock bass apparently provides the better of the two. A total of 37 fish species was collected from all sites combined. Large numbers of rather intolerant cyprinids, such as the telescope shiner (*Notropis telescopus*) and the Tennessee shiner (*N. leuciodus*), collected at our sample area upstream of Tellico Plains further attest to the water quality. Also, it is interesting to note the presence of the tangerine darter (*Percina aurantiaca*), a species that is considered of "Special Concern" by the Tennessee Heritage Program (Starnes and Etnier 1980).

Benthic macroinvertebrates from our samples included Baetidae, Caenidae, Ephemerellidae, Heptageniidae, and Oligoneuriidae mayflies, Brachycentridae, Hydropsychidae, Philopotamidae, and Rhyacophilidae caddisflies, Capniidae, Perlidae, and Pteronarcyidae stoneflies, elmids riffle beetles, and hellgrammites (*Corydalus cornutus*). Asian clams (*Corbicula fluminea*) and pleurocerid snails (*Anculosa subglobosa* and *Pleurocera unciala*) were collected from the lower site only.

Fish collected in three samples of the Tellico River.

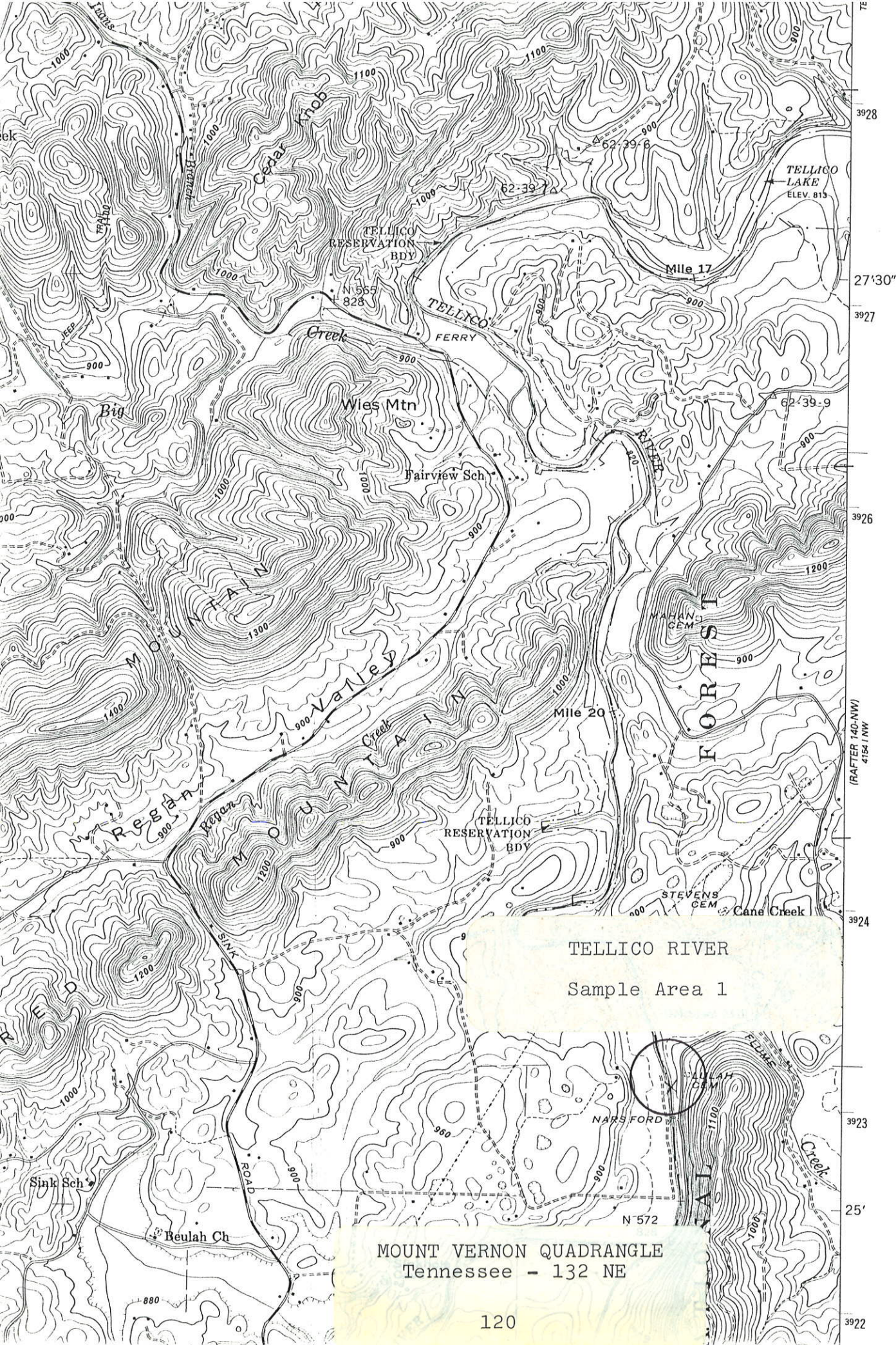
Species	<u>Area 1</u>			<u>Area 2</u>			<u>Area 3</u>		
	No.	% by No.	Wt.	% by Wt.	No.	% by Wt.	No.	% by Wt.	% by Wt.
Rainbow trout							38	65.5	3.9
Brown trout							1	1.7	0.7
Largemouth bass	1	0.1	0.03	0.2					
Smallmouth bass					23	1.2			
Rock bass	11	1.3	2.05	13.3	12	0.6			
Bluegill	19	2.3	0.55	3.6					
Redbreast sunfish	26	3.1	1.13	7.3					
Nongame Fish	78	9.4	6.62	42.9	138	6.9			
Forage Fish	695	83.7	5.06	32.8	1819	91.3	13	22.4	2.6
							6	10.3	0.1
Total	830		15.44		1992		58		7.3

Calculated standing crop of all fish species collected at sample area 2 of the Tellico River.

Species	Total No. Collected	% by No.	Total Wt. Collected	% by Wt.	Est. No./ac	Est. lb./ac
Smallmouth bass	23	1.2	1.15	4.5	46	2.3
Rock bass	12	0.6	2.62	10.3	19	4.16
Northern hog sucker	128	6.4	6.77	26.7	256	13.55
Black redbhorse	10	0.5	0.65	2.6	15	9.82
Central stoneroller	344	17.3	6.5	25.6	618	11.72
River chub	129	6.5	2.76	10.9	256	5.47
Warpaint shiner	78	3.9	0.63	2.5	138	1.13
Whitetail shiner	183	9.2	0.29	1.1	436	0.67
Tennessee shiner	414	20.8	0.79	3.1	762	1.51
Telescope shiner	354	17.8	1.11	4.4	700	2.1
Creek chub ^a	1	0.1	t			
Greenside darter	100	5.0	0.95	3.8	216	2.05
Spotted darter ^b	15	0.8	0.05	0.2	34	0.12
Redline darter	51	2.6	0.15	0.6	124	0.38
Tenn. snubnose darter	19	1.0	0.07	0.3	31	0.12
Banded darter	71	3.6	0.19	0.8	312	0.83
Tangerine darter	10	0.5	0.16	0.6	18	0.29
Logperch ^b	17	0.9	0.41	1.6	39	0.93
Gilt darter	33	1.7	0.12	0.5	93	0.33
Total	1992		25.37		4113	57.48

^aNo population estimate generated, all fish caught on 1st pass.

^bEstimate arbitrarily set to 1.5 times the total catch due to non-descending removal pattern. Results should not be considered reliable.



TELICO RIVER

Sample Area 1

MOUNT VERNON QUADRANGLE
Tennessee - 132 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Little Tennessee River Lat-Long 352519N - 841533W
Stream Tellico River Length of Sample 400'
Area or Station Site # 1 Reach 06010204-9,0
County Monroe Date/Time 21 October 1987/1030
Data Collected By R. Bivens, D. Lane, C. Ellison, and D. Pollard

B. PHYSICAL CHARACTERISTICS

1. Average Width 73.8' Average Depth 1.1' Maximum Depth 3.9'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 10 % Sand 10 %
Clay - % Gravel 20 % Rubble 40 % Boulders 15 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
Bedrock - % Other Rubble 40% Gravel 30% Boulders 5%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 40 %, Poor in 30 %.
7. Shade or Canopy Good over 70 % of Stream.
8. Flow (c.f.s.) 84.4 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 8.0 ppm Temp. 54.5 °F % Saturation 75
10. Present Weather Partly cloudy, cool, and breezy, air temp. - 56°F.
11. Past Weather (last 24 hours) Cloudy with showers, cold overnight.
12. D.O. 8.0 pH 7.0 Temp. 54.5 Conductivity 108
13. Comments: Sample location ca. 600' below Nars Ford off Belltown
road at Tellico River mile 21.65.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee RiverLat-Long 352519N - 841533WBody of Water Tellico RiverDate 21 October 1987County or River Mile MonroeReach 06010 204-9,0Type of Sampling ElectrofishingPool Elevation 817'Gear Type Two backpack shockersTime 1200-1400side by side @ 350 v. AC and shocking into 30' seine on riffle areas.

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus salmoides</i>		220	1	4	0.03			
<i>Ambloplites rupestris</i>		13	3	3	0.01			
"	"	"	1	5	0.08			
"	"	"	1	6	0.11			
"	"	"	4	7	0.87			
"	"	"	1	8	0.31			
"	"	"	1	10	0.67			
<i>Lepomis auritus</i>		201	1	1	t			
"	"	"	1	2	0.01			
"	"	"	10	3	0.14			
"	"	"	7	4	0.23			
"	"	"	3	5	0.19			
"	"	"	3	6	0.39			
"	"	"	1	7	0.17			
<i>Lepomis macrochirus</i>		206	2	2	0.02			
"	"	"	12	3	0.19			
"	"	"	3	4	0.08			
"	"	"	1	5	0.06			
"	"	"	1	7	0.2			
<i>Noturus eleutherus</i>		283	17	2-3	0.06			
<i>Hypentelium nigricans</i>		166	59	3-10	4.5			
<i>Moxostoma duquesnei</i>		229	4	7-11	0.54			
<i>Moxostoma erythrurum</i>		230	1	3	0.01			
Continued	on	next	page					

* Label Parameter Listed

Field Notes: 400' sample length. Two *Necturus maculosus* collected from this site. Also, one *Lepomis gulosus* was collected, but lost.

Name of Collector(s): Rick Bivens, David Lane, Chester Ellison, andDaniel Pollard

WR-C525

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee RiverLat-Long 352519N - 841533WBody of Water Tellico RiverDate 21 October 1987County or River Mile MonroeReach 06010204-9,0Type of Sampling ElectrofishingPool Elevation 817'Gear Type Two backpack shockersTime 1200-1400

side by side @ 350 v. AC and shocking into 30' seine on riffle areas.

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Campostoma anomalum</i>		25	151	2-6	2.23			
<i>Cyprinus carpio</i>		47	1	14	1.35			
<i>Hybopsis amblops</i>		155	4	2	0.01			
<i>Nocomis micropogon</i>		234	57	2-5	0.7			
<i>Notropis coecogenis</i>		248	90	1-4	0.42			
<i>Notropis chrysocephalus</i>		249	17	2-4	0.14			
<i>Notropis galacturus</i>		253	1	3	t			
<i>Notropis leuciodus</i>		255	163	1-3	0.32			
<i>Notropis spilopterus</i>		269	22	1-3	0.06			
<i>Notropis telescopus</i>		272	1	2	t			
<i>Phenacobius uranops</i>		330	12	2-3	0.13			
<i>Etheostoma blennioides</i>		81	26	2-4	0.23			
<i>Etheostoma rufilineatum</i>		108	21	2	0.08			
<i>Etheostoma simoterum</i>		111	28	2	0.08			
<i>Etheostoma zonale</i>		135	3	2	t			
<i>Percina caprodes</i>		306	28	2-5	0.3			
<i>Percina evides</i>		310	25	1-3	0.11			
<i>Percina sciera</i>		317	9	2-3	0.06			
<i>Cottus caroliniae</i>		40	19	2-3	0.13			
<i>Labidesthes sicculus</i>		189	1	3	t			
<i>Lampetra appendix</i>		192	11	6-7	0.21			
<i>Ichthyomyzon greeleyi</i>		170	2	5	0.01			

* Label Parameter Listed

Field Notes: 400' sample length.Name of Collector(s): Rick Bivens, David Lane, Chester Ellison, andDaniel Pollard

WR-C525

Tellico River: Site # 1, Edge Surber sample

21 October 1987

Field # 078

Monroe Co., TN; Nars Ford at Tellico River mi. 21.65.
Coordinates: 352519N - 841533W. Mount Vernon, Tenn.,
132 NE Quad. Reach # 06010204-9,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
<u>Promoresia tardella</u> larvae	2
DIPTERA:	
Chironomidae	2
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	1
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	10
<u>Pleurocera unciala</u>	3
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	4
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche venularis</u>	2
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	27

Volumetric Displacement was 0.25 ml.

Tellico River: Site # 1, Midstream Surber sample

21 October 1987

Field # 078

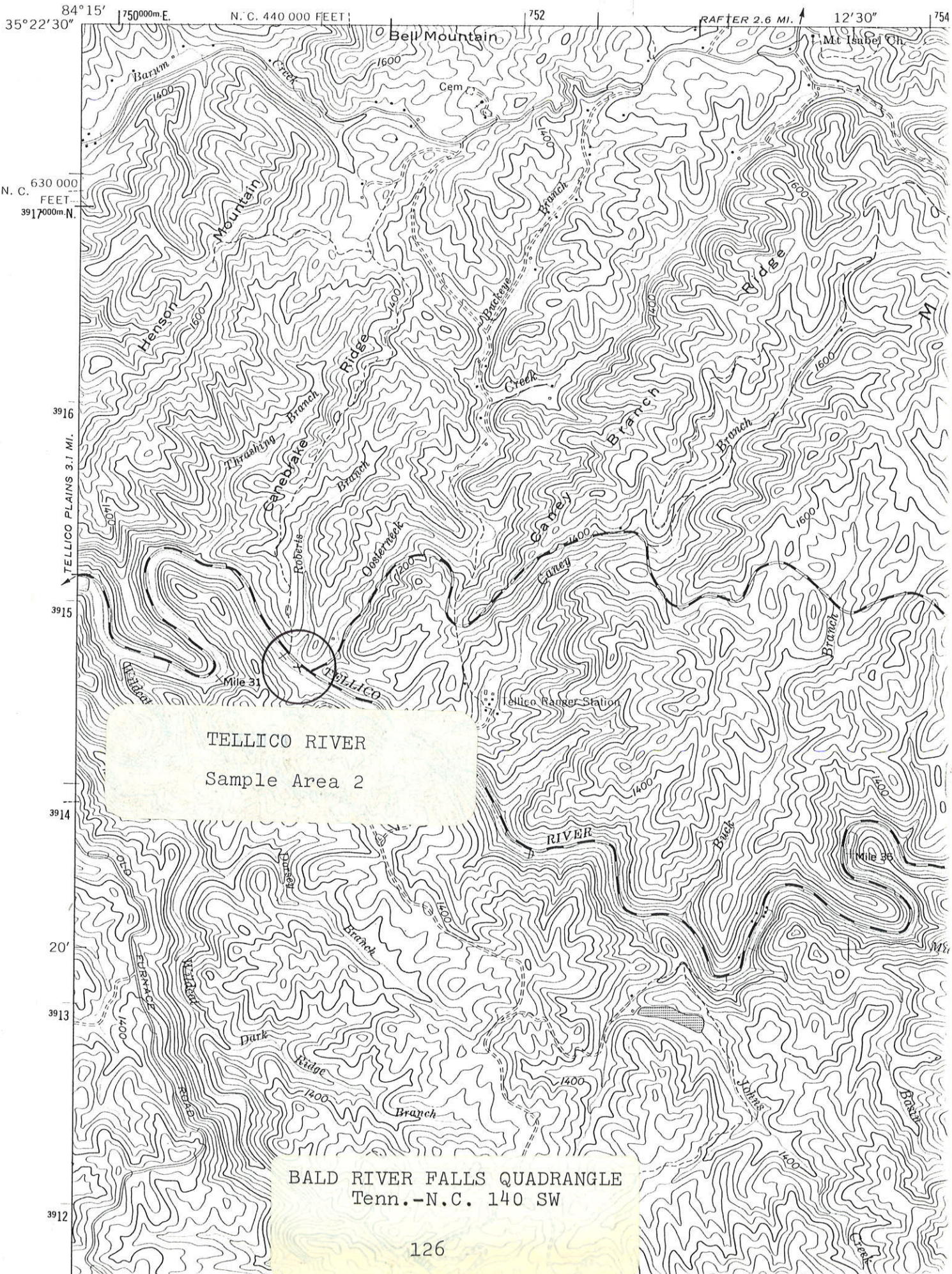
Monroe Co., TN; Nars Ford at Tellico River mi. 21.65.
Coordinates: 352519N - 841533W. Mount Vernon, Tenn.,
132 NE Quad. Reach # 06010204-9,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	5
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	3
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	1
OLIGOCHAETA:	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	2
	<hr/>
	13

Volumetric Displacement was 0.25 ml.

NE
VERNON
132-NE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Little Tennessee River Lat-Long 352045N - 841417W
Stream Tellico River Length of Sample 300'
Area or Station Site # 2 Reach 06010204-11,0
County Monroe Date/Time 6 October 1987/1000
Data Collected By R. Bivens, C. Ellison, D. Lane, and S. Lambert

B. PHYSICAL CHARACTERISTICS

1. Average Width 96.3' Average Depth 1.0' Maximum Depth 3.1'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud - % Silt 10 % Sand 20 %
Clay - % Gravel 10 % Rubble 20 % Boulders 20 %
Bedrock 20 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 10 % Sand 20 %
Bedrock 30 % Other Gravel 10% Rubble 20% Boulders 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 40 %, Poor in 20 %.
7. Shade or Canopy Good over 20 % of Stream.
8. Flow (c.f.s.) 115.6 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 10.0 ppm Temp. 52.7 °F % Saturation 91
10. Present Weather Partly cloudy and cool; air temp. - 64° F.
11. Past Weather (last 24 hours) Partly cloudy and cool.
12. D.O. 10.0 pH 7.3 Temp. 52.7 Conductivity 41
13. Comments: Sample location just below the mouth of Oosterneck
Creek, at Tellico River mile 32.07.

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee River Lat-Long 352045N - 841417W
 Body of Water Tellico River Date 6 October 1987
 County or River Mile Monroe Reach 06010204-11,0
 Type of Sampling Electrofishing Pool Elevation 1010'
 Gear Type 5 backpack shockers side Time 1100-1515
 by side @ 350 v. AC

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus dolomieu</i>		218	1	11	0.5			
"	"	"	1	8	0.19			
"	"	"	1	6	0.08			
"	"	"	6	5	0.26			
"	"	"	1	4	0.04			
"	"	"	1	3	0.02			
"	"	"	12	2	0.02			
<i>Ambloplites rupestris</i>		13	1	10	0.54			
"	"	"	3	8	0.87			
"	"	"	2	7	0.46			
"	"	"	3	6	0.45			
"	"	"	3	5	0.26			
<i>Hypentelium nigricans</i>		166	128	2-10	6.77			
<i>Moxostoma duquesnei</i>		299	10	5-6	0.6			
<i>Camptostoma anomalum</i>		25	344	2-7	6.5			
<i>Nocomis micropogon</i>		234	129	1-8	2.75			
<i>Notropis coccogenis</i>		248	78	1-5	0.6			
<i>Notropis galacturus</i>		253	183	1-5	0.29			
<i>Notropis leuciodus</i>		255	414	1-3	0.8			
<i>Notropis telescopus</i>		272	354	1-3	1.1			
<i>Semotilus atromaculatus</i>		360	1	2	t			
<i>Etheostoma blennioides</i>		81	100	2-5	0.95			
<i>Etheostoma maculatum</i>		101	15	1-3	0.05			
<i>Etheostoma rufilineatum</i>		108	51	1-3	0.15			
Continued			on	next	page			

* Label Parameter Listed

Field Notes: 300' sample length, 3 pass depletion.

Name of Collector(s): Bivens, Ellison, Lane, Lambert, Pollard, Seay,

WR-C525 Stocksbury, Nichols, Akins, Moore, and Habera

Watershed <u>Little Tennessee River</u>	Lat-Long <u>352045N - 841417W</u>
Body of Water <u>Tellico River</u>	Date <u>6 October 1987</u>
County or River Mile <u>Monroe</u>	Reach <u>06010204-11.0</u>
Type of Sampling <u>Electrofishing</u>	Pool Elevation <u>1010'</u>
Gear Type <u>5 backpack shockers side</u> <u>by side @ 350 v. AC</u>	Time <u>1100-1515</u>

[illegible]

Field Notes: 300' sample length, 3 pass depletion.

Name of Collector(s): Bivens, Ellison, Lane, Lambert, Pollard, Seay,

Stooksbury, Nichols, Akins, Moore, and Habera

Tellico River: Site # 2, Edge Surber sample

6 October 1987

Field # 075

Monroe Co., TN; Mouth of Oosterneck Creek, Tellico River mi.
32.07. Coordinates: 352045N - 841417W. Bald River Falls,
Tenn.-N.C., # 140 SW Quad. Reach # 06010204-11,0.

TAXA	NUMBER
EPHEMEROPTERA:	
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Heptagenia</u>	2
<u>Stenonema</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus</u> <u>cornutus</u>	1
ODONATA:	
Coenagrionidae/ <u>Argia</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	2
	<hr/>
	8

Volumetric Displacement was 0.05 ml.

Tellico River: Site # 2, Midstream Surber sample

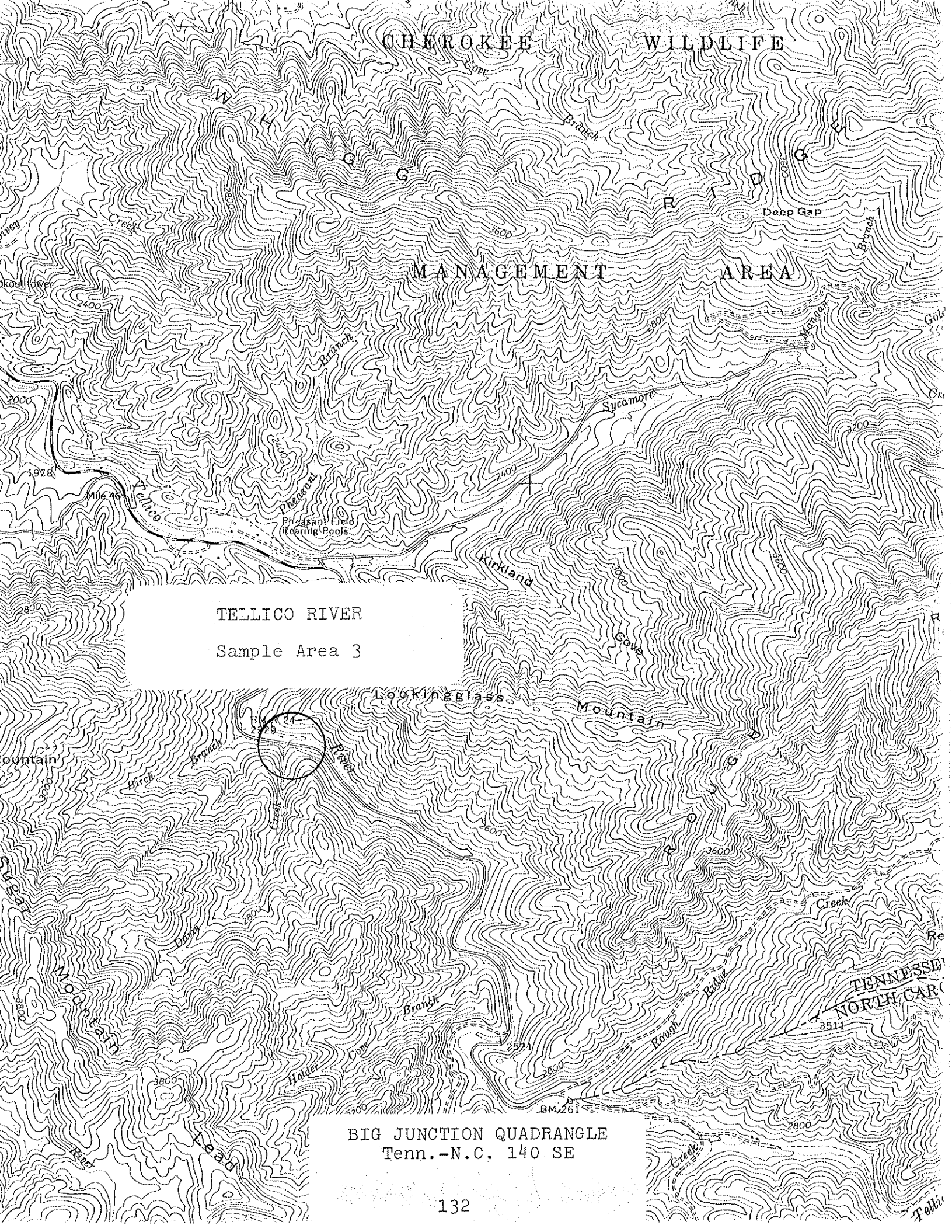
6 October 1987

Field # 075

Monroe Co., TN; Mouth of Oosterneck Creek, Tellico River mi.
32.07. Coordinates: 352045N - 841417W. Bald River Falls,
Tenn.-N.C., # 140 SW Quad. Reach # 06010204-11,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	1
Simuliidae	1
EPHEMEROPTERA:	
Caenidae/Caenis	1
Heptageniidae/Stenonema	4
Oligoneuriidae/Isonychia	7
ISOPODA:	
Asellidae/Lirceus	3
MEGALOPTERA:	
Corydalidae/Corydalus cornutus	7
OLIGOCHAETA:	6
PLECOPTERA:	
Perlidae/Acroneuria abnormis	5
TRICHOPTERA:	
Brachycentridae/Micrasema	1
Hydropsychidae/Cheumatopsyche	7
Hydropsyche	3
H. venularis	3
Symphitopsyche morosa	5
Philopotamidae/Chimarra	1
	55

Volumetric Displacement was 0.8 ml.



CHEROKEE WILDLIFE

MANAGEMENT AREA

TELLICO RIVER
Sample Area 3

BIG JUNCTION QUADRANGLE
Tenn.-N.C. 140 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Little Tennessee River Lat-Long 351645N - 840553W
Stream Tellico River Length of Sample 300'
Area or Station Site # 3 Reach 06010204-13.1
County Monroe Date/Time 29 July 1987/1330
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 45.6' Average Depth 0.8' Maximum Depth 3.5'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 10 % Sand 10 %
Clay - % Gravel 5 % Rubble 20 % Boulders 50 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 15 % Sand 10 %
Bedrock - % Other Rubble 25% Boulders 50%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of stream, Average in 25 %, Poor in 25 %.
7. Shade or Canopy Gobd over 80 % of Stream.
8. Flow (c.f.s.) 58.4 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 8.9 ppm Temp. 67.1 °F % Saturation 97
10. Present Weather Partly cloudy and hot; temperature - 85° F.
11. Past Weather (last 24 hours) Partly cloudy and hot.
- ** 12. D.O. 8.9 pH 6.7 Temp. 67.1 Conductivity -
13. Comments: Sample location about 1 mi. upstream from bridge at the hatchery; at Davis Creek Campground. * Taken with YSI meter.
** pH taken with pocket pH meter.

Tellico River: Site # 3, Edge Surber sample

29 July 1987

Field # 053

Monroe Co., TN; Davis Creek Campground. Coordinates:
351645N - 840553W. Big Junction, Tenn.-N.C., # 140 SE Quad.
Reach # 06010204-13,1.

TAXA	NUMBER
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Ephemere ll idae/ <u>Drunella</u>	5
<u>Serratella</u>	1
Heptageniidae/ <u>Epeorus</u> (<u>Iron</u>)	2
<u>Heptagenia</u>	1
PLECOPTERA:	
Perlidae/ <u>Acroneuria</u> <u>abnormis</u>	1
	<hr/>
	12

Volumetric Displacement was 0.25 ml.

Tellico River: Site # 3, Midstream Surber sample

29 July 1987

Field # 053

Monroe Co., TN; Davis Creek Campground. Coordinates:
351645N - 840553W. Big Junction, Tenn.-N.C., # 140 SE
Quad. Reach # 06010204-13,1.

TAXA	NUMBER
EPHEMEROPTERA:	
Ephemerellidae/ <u>Drunella</u>	2
<u>Serratella</u>	6
Heptageniidae/ <u>Epeorus</u> (<u>Iron</u>)	1
OLIGOCHAETA:	1
PLECOPTERA:	
Capniidae	1
Perlidae/ <u>Paragnetina immarginata</u>	2
Pteronarcyidae/ <u>Allonarcys</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	2
Rhyacophilidae/ <u>Rhyacophila fuscula</u>	1
	<hr/>
	17

Volumetric Displacement was 1.5 ml.

Cane Creek

One qualitative fishery survey was conducted in October 1987:

Location and Length - Tributary to the Tellico River. The sample area was located at the bridge on Belltown Road and was sampled on 21 October 1987. It was 300 ft. in length and averaged 18.7 ft. in width. The site was in Monroe County. Mount Vernon Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers were operated side by side at 350 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 21 October 1987: DO - 8.3 ppm, pH - 7.1, Temperature - 55.0 F, Conductivity - 118 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 24 organisms, 0.3 ml. volumetric displacement, and represented 12 different taxa.

Fish Collected:

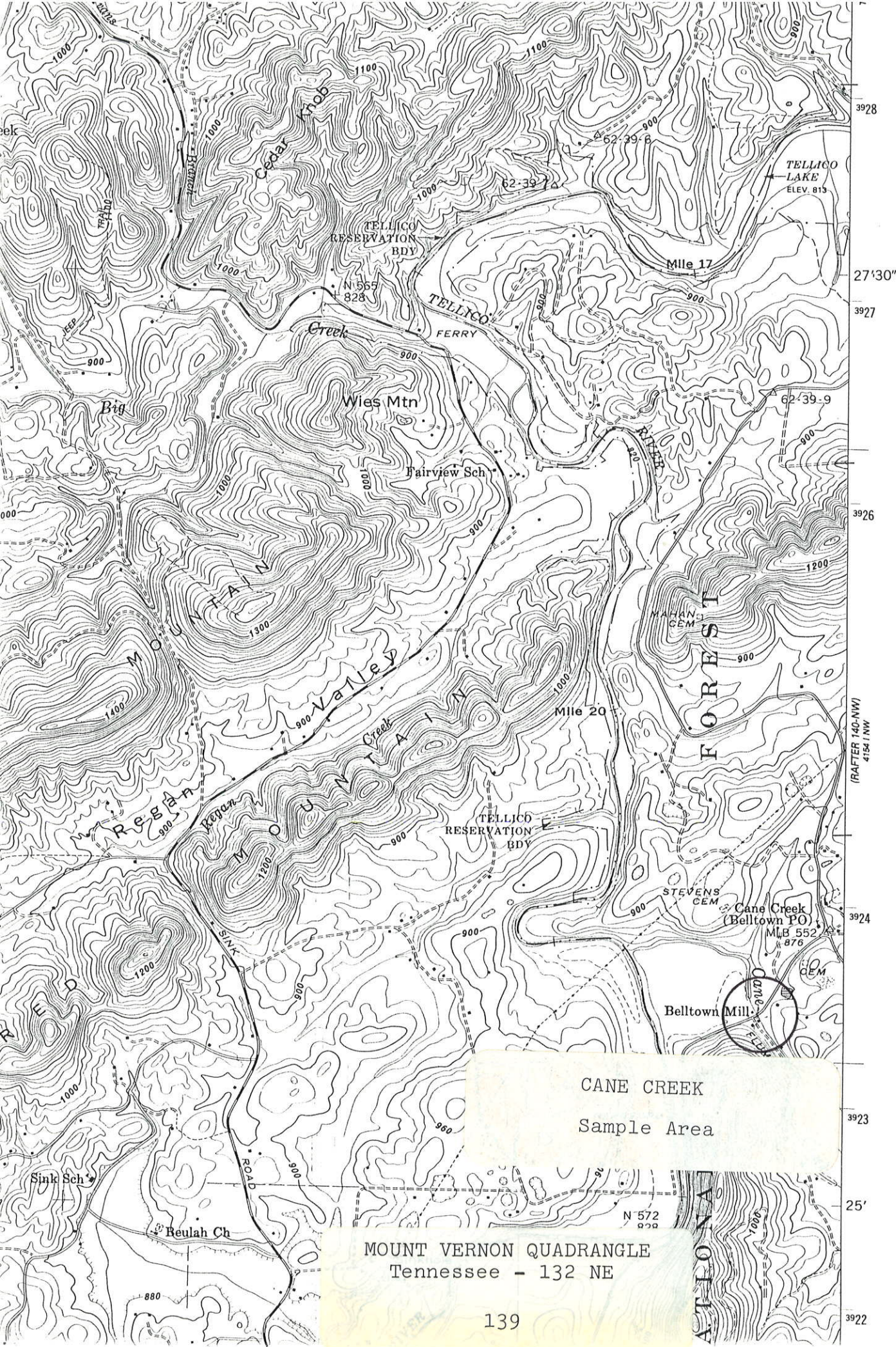
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Largemouth bass	3	0.5	1.35	7.5
Smallmouth bass	1	0.2	0.02	0.1
Rock bass	3	0.5	0.75	4.2
Bleugill	40	6.8	1.09	6.0
Redbreast sunfish	6	1.0	0.43	2.4
Longear sunfish	5	0.9	0.14	0.8
Redear sunfish	1	0.2	0.02	0.1
Warmouth	1	0.2	0.07	0.4
Sunfish hybrid	2	0.3	0.06	0.3
Nongame Fish	74	12.6	9.82	54.4
Forage Fish	449	76.8	4.29	23.5
Total	585		18.04	

Comments - This stream was surveyed in conjunction with the lower Tellico River sampling, as we were in the area and had time to conduct an additional survey. The sampling was done primarily to develop a fish species diversity list and collect stream information for TADS.

A variety of game fish was collected from Cane Creek. These included largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), rock bass (*Ambloplites rupestris*), warmouth (*Lepomis gulosus*), redbreast sunfish (*L. microlophus*), longear sunfish (*L. megalotis*), redbreast sunfish (*L. auritus*), and bluegill (*L. macrochirus*). Bluegill made up about 65% of the total number of game fish collected and two bluegill/redbreast sunfish hybrids were noted. Also of interest is the presence of the native longear sunfish along with the exotic redbreast sunfish which appears to be replacing the longear in much of the upper Tennessee River drainage (Etnier et al. 1983). We collected almost equal numbers of the two species.

Although widely distributed, two species not commonly encountered in east Tennessee streams, the dusky darter (*Percina sciera*) and northern studfish (*Fundulus catenatus*) were also collected from Cane Creek. A total of 29 fish species was collected.

Benthic macroinvertebrates from our samples included representatives of Baetidae, Baetiscidae, Caenidae, and Oligoneuriidae mayflies, Hydropsychidae and Polycentropodidae caddisflies, and Elmidae and Psephenidae beetles. Asian clams (*Corbicula fluminea*) and the river snail (*Pleurocera uncialis*) were also present.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Little Tennessee River Lat-Long 352530N - 841533W
Stream Cane Creek Length of Sample 300'
Area or Station Belltown Rd. Bridge Reach 06010704-14.0
County Monroe Date/Time 21 October 1987/1830
Data Collected By R. Bivens, D. Lane, C. Ellison, and D. Pollard

B. PHYSICAL CHARACTERISTICS

1. Average Width 18.7' Average Depth 0.9' Maximum Depth 2.3'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 15 % Sand 20 %
Clay - % Gravel 10 % Rubble 30 % Boulders 20 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 15 % Sand 20 %
Bedrock - % Other Rubble 40% Gravel 10% Boulders 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 45 %
of stream, Average in 40 %, Poor in 15 %.
7. Shade or Canopy Good over 60 % of Stream.
8. Flow (c.f.s.) 5.4 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 8.3 ppm Temp. 55 °F % Saturation 78
10. Present Weather Partly cloudy, cool and windy; air temp. 52° F.
11. Past Weather (last 24 hours) Cloudy with showers and cold overnight.
12. D.O. 8.3 pH 7.1 Temp. 55 Conductivity 118
13. Comments: Sample location at the bridge on Belltown Road, 150'
above and 150' below the bridge, at old Belltown Mill.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee RiverLat-Long 352530N - 841516WBody of Water Cane CreekDate 21 October 1987County or River Mile MonroeReach 06010704-14,0Type of Sampling ElectrofishingPool Elevation 821'Gear Type Two backpack shockers
side by side at 350 v. ACTime 1630-1715

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Micropterus salmoides</i>	220	1	9	0.35			
" "	"	1	10	0.4			
" "	"	1	11	0.6			
<i>Mocropterus dolomieu</i>	218	1	3	0.02			
<i>Ambloplites rupestris</i>	13	1	6	0.18			
" "	"	1	7	0.2			
" "	"	1	8	0.37			
<i>Lepomis gulosus</i>	204	1	5	0.07			
<i>Lepomis microlophus</i>	209	1	4	0.02			
<i>Lepomis megalotis</i>	208	1	2	0.01			
" "	"	2	3	0.04			
" "	"	2	4	0.09			
<i>Lepomis auritus</i>	201	1	2	t			
" "	"	1	3	0.02			
" "	"	2	4	0.08			
" "	"	1	5	0.07			
" "	"	1	7	0.26			
<i>Lepomis macrochirus</i>	206	4	2	0.02			
" "	"	18	3	0.3			
" "	"	7	4	0.16			
" "	"	10	5	0.46			
" "	"	1	6	0.15			
<i>Lepomis auritus x</i>							
<i>macrochirus</i>		1	4	0.04			
" "		1	3	0.02			

* Label Parameter Listed Continued on next page

Field Notes: 300' sample length.Name of Collector(s): Rick Bivens, David Lane, Chester Ellison, and

WR-C525

Daniel Pollard

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee RiverLat-Long 352530N - 841516WBody of Water Cane CreekDate 21 October 1987County or River Mile MonroeReach 06010704-14,0Type of Sampling ElectrofishingPool Elevation 821'Gear Type Two backpack shockers
side by side @ 350 v. ACTime 1630-1715

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ictalurus natalis</i>		174	1	7	0.1			
<i>Hypentelium nigricans</i>		166	26	5-12	4.45			
<i>Moxostoma duquesnei</i>		229	36	5-10	4.98			
<i>Moxostoma erythrurum</i>		230	3	3-6	0.15			
<i>Campostoma anomalum</i>		25	255	2-5	2.5			
<i>Hybopsis amblops</i>		155	1	3	t			
<i>Nocomis micropogon</i>		234	5	5-8	0.5			
<i>Notropis chrysocephalus</i>		249	24	3-5	0.34			
<i>Notropis oocogenis</i>		248	43	2-4	0.3			
<i>Notropis galacturus</i>		253	13	1-3	0.04			
<i>Notropis spilopterus</i>		269	6	2-3	0.01			
<i>Notropis telescopus</i>		272	1	2	t			
<i>Rhinichthys atratulus</i>		351	1	2	t			
<i>Fundulus catenatus</i>		137	14	1-3	0.06			
<i>Etheostoma blennioides</i>		81	1	3	t			
<i>Etheostoma rufilineatum</i>		108	8	2	0.03			
<i>Etheostoma simoterum</i>		111	28	2	0.07			
<i>Percina caprodes</i>		306	37	3-4	0.29			
<i>Percina sciera</i>		317	1	3	t			
<i>Cottus caroliniae</i>		40	11	2-4	0.15			
* <i>Lampetra appendix</i>		192	8	6-7	0.14			

* Label Parameter Listed * 7 adults and 1 ammocoetes.

Field Notes: 300' sample length.Name of Collector(s): Rick Bivens, David Lane, Chester Ellison, andDaniel Pollard

WR-C525

Cane Creek: Edge Surber sample

21 October 1987

Field # 079

Monroe Co., TN; Bridge on Belltown Road at Belltown Mill.
Coordinates: 352530N - 841516W. Mount Vernon, Tenn.,
132 NE Quad. Reach # 06010704-14.0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae larvae	6
pupa	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Baetiscidae/ <u>Baetisca gibbera</u>	1
Caenidae/ <u>Caenis</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
	<hr/>
	12

Volumetric Displacement was 0.15 ml.

Cane Creek: Midstream Surber sample

21 October 1987

Field # 079

Monroe Co., TN; Bridge on Belltown Road at Belltown Mill.
Coordinates: 352530N - 841516W. Mount Vernon, Tenn.,
132 NE Quad. Reach # 06010704-14,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
DIPTERA:	
Chironomidae	2
EPHEMEROPTERA:	
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera</u> <u>unciale</u>	23
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	5
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
Polycentropodidae/ <u>Polycentropus</u>	1
	<hr/>
	36

Volumetric Displacement was 0.35 ml.

Ninemile Creek

One qualitative fishery survey was conducted in July 1987:

Location and Length - Tributary to the Little Tennessee River (Tellico Reservoir). The sample area was located at the Garland Road Bridge at Highway 129 and was sampled on 2 July 1987. It was 400 ft. in length and averaged 30.1 ft. in width. The site was in Blount County. Tallassee Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers were operated side by side at 110 v. AC. Five seine hauls, using a 30 ft. seine in combination with a backpack shocker, were also made due to the turbidity of the stream.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 2 July 1987: DO - 8.6 ppm, pH - 7.3, Temperature - 72.0 F, Conductivity - 240 microhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 60 organisms, 1.5 ml. volumetric displacement, and represented 14 different taxa.

Fish Collected:

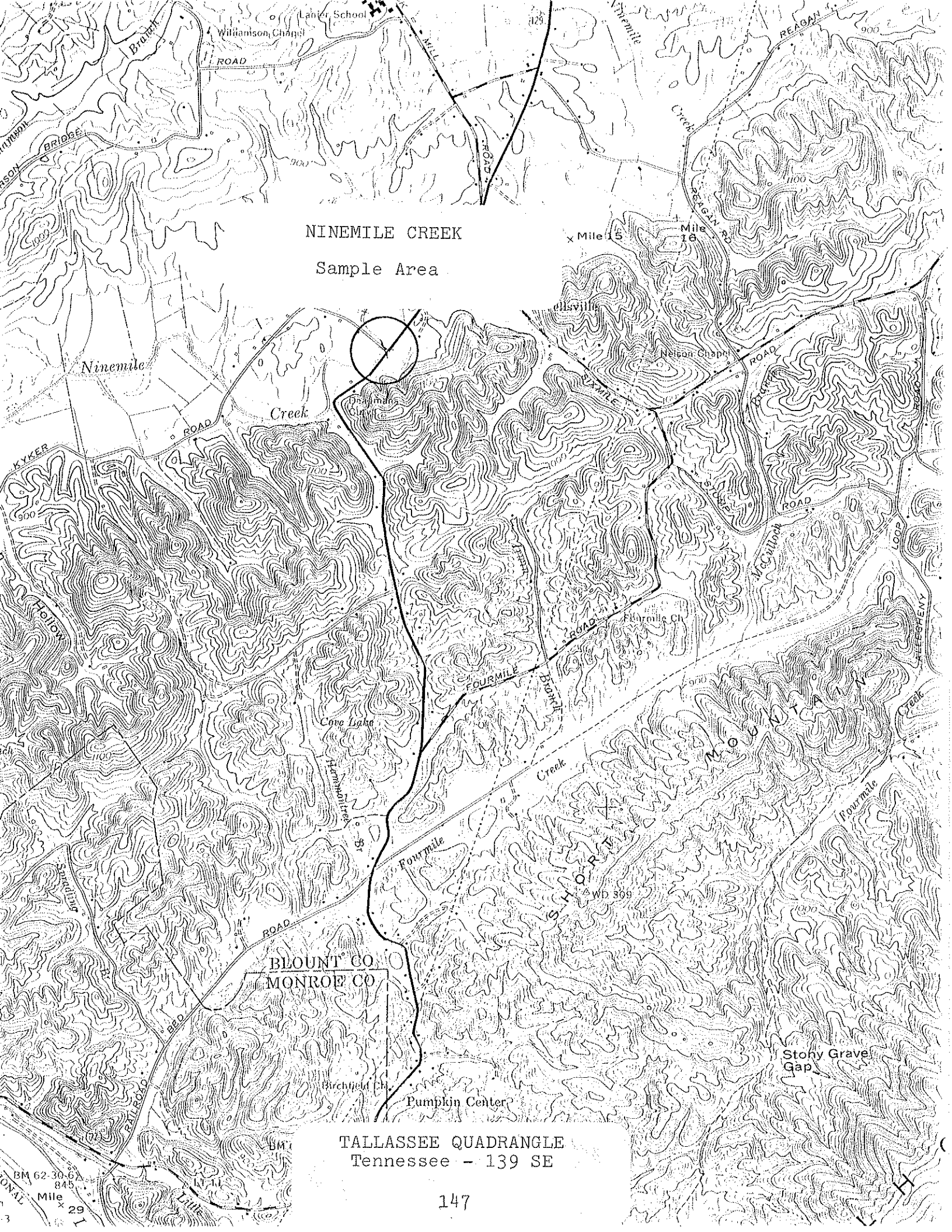
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Largemouth bass	3	0.9	3.2	11.5
Rock bass	9	2.8	1.1	4.4
Bluegill	3	0.9	0.2	0.8
Redbreast sunfish	40	12.5	0.8	3.2
Nongame Fish	54	16.9	16.15	54.6
Forage Fish	211	65.9	3.6	14.4
Total	320		25.05	

Comments - This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Game fish from our sample included largemouth bass (*Micropterus salmoides*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), and redbreast sunfish (*L. auritus*). Redbreast sunfish were the principle game fish

and they made up about 13% of the total number of fish collected. However, three largemouth bass made up over 11% by weight while redbreast sunfish made up only about 3% of the total weight.

The stream is fairly turbid and sampling was difficult. It receives heavy siltation mainly from agricultural sources all along the watershed. We collected a total of 17 fish species, most of which are species components of streams that exhibit typical non-point-source pollution.

Benthic macroinvertebrates from our samples included Baetidae Heptageniidae, and Oligoneuriidae mayflies, Hydropsychidae and Hydroptilidae caddisflies, chironomids, and the perlid stonefly *Paragnetina media*. Asian clams (*Corbicula fluminea*) and the river snail *Pleurocera uncialis* were also present.



NINEMILE CREEK
Sample Area

BLOUNT CO
MONROE CO

TALLASSEE QUADRANGLE
Tennessee - 139 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Little Tennessee River Lat-Long 353622N - 840548W
Stream Ninemile Creek Length of Sample 400'
Area or Station Garland Rd. Bridge Reach 06010204-42,0
County Blount Date/Time 2 July 1987/1030
Data Collected By Rick D. Bivens, David Lane, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 30.1' Average Depth 0.8' Maximum Depth 3.1'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 20 % Silt 30 % Sand 30 %
Clay 10 % Gravel 5 % Rubble 5 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 20 %
Bedrock 20 % Other Rubble 20% Gravel 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of stream, Average in 30 %, Poor in 20 %.
7. Shade or Canopy Good over 50 % of Stream.
8. Flow (c.f.s.) 17.3 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 8.6 ppm Temp. 72.0 °F % Saturation 98
10. Present Weather Partly cloudy, hot, and humid.
11. Past Weather (last 24 hours) Partly cloudy with showers.
12. D.O. 8.6 pH 7.3 Temp. 72.0 Conductivity 240
13. Comments: Sample location above and below Garland rd. bridge at hwy. 129 (Garland rd. is Kyker rd. on Co. map). Stream is very silty and turbid. Watershed used for agriculture; cattle in stream, etc.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Little Tennessee RiverLat-Long 353622N - 840548WBody of Water Ninemile CreekDate 2 July 1987County or River Mile BlountReach 06010204-42,0Type of Sampling ElectrofishingPool Elevation 853'Gear Type Two backpack shockers side
by side, 110 v. ACTime 1200-1330

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	2	2	t			
"	"	"	1	3	t			
"	"	"	2	4	0.1			
"	"	"	3	7	0.6			
"	"	"	1	9	0.4			
<i>Micropterus salmoides</i>		220	1	13	1.2			
"	"	"	1	15	1.6			
"	"	"	1	10	0.4			
<i>Lepomis auritus</i>		201	23	2	0.1			
"	"	"	11	3	0.2			
"	"	"	3	4	0.1			
"	"	"	2	5	0.2			
"	"	"	1	6	0.2			
<i>Lepomis macrochirus</i>		206	1	3	0.05			
"	"	"	1	4	0.05			
"	"	"	1	5	0.1			
<i>Moxostoma duquesnei</i>		229	1	14	0.9			
<i>Moxostoma erythrurum</i>		230	12	4-16	3.5			
<i>Camptostoma anomalum</i>		25	43	2-7	1.6			
<i>Cyprinus carpio</i>		47	2	19-21	7.15			
<i>Nocomis micropogon</i>		234	5	6-9	0.8			
<i>Notropis chrysocephalus</i>		249	32	2-5	0.4			
<i>Notropis coccoensis</i>		248	8	1-4	0.1			
Continued on			next	page				

* Label Parameter Listed

Field Notes: Water was turbid; made 1 pass with 2 shockers side by side,
then went back and made 5 seine hauls with shocker; 400' sample length.

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-C525

TENNESSEE WILDLIFE RESOURCES AGENCY

Time 1200-1330

149a

Ninemile Creek: Edge Surber sample

2 July 1987

Field # 045

Blount Co., TN; Garland Road bridge at U.S. Hwy. 129.
Coordinates: 353622N - 840548W. Tallassee, Tenn., # 139 SE
Quad. Reach # 06010204-42,0.

TAXA	NUMBER
DIPTERA:	
Unidentified adult	1
Chironomidae	4
Empididae	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	3
Heptageniidae/ <u>Stenacron</u>	2
<u>Stenonema</u>	11
Oligoneuriidae/ <u>Isonychia</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	14
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	2
TRICHOPTERA:	
Hydroptilidae/ <u>Hydroptila</u>	1
	<hr/>
	42

Volumetric Displacement was 1.0 ml.

Ninemile Creek: Midstream Surber sample

2 July 1987

Field # 045

Blount Co., TN; Garland Road bridge at U.S. Hwy. 129.
Coordinates: 353622N - 840548W. Tallassee, Tenn., # 139 SE
Quad. Reach # 06010204-42,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	8
Tipulidae/ <u>Antocha</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Heptageniidae/ <u>Stenonema</u>	44
Oligoneuriidae/ <u>Isonychia</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	2
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	2
PLECOPTERA:	
Perlidae/ <u>Paragnetina media</u>	2
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	9
<u>Hydropsyche betteni/depravata</u>	3
	<hr/>
	77

Volumetric Displacement was 2.0 ml.

Dumplin Creek

Two qualitative fishery surveys were conducted in December 1986:

Location and Length - Tributary to the French Broad River. Sample area 1 was at the bridge on Douglas Dam Road at Kodak and was sampled on 4 December 1986. The sample area was 600 ft. in length and averaged 24.7 ft. in width. Sample area 2 was upstream of the Highway 25W and 70 bridge and was sampled on 3 December 1986. The sample area was 500 ft. in length and averaged 16.4 ft. in width. Area 1 was in Sevier County; Douglas Dam Quadrangle. Area 2 was in Jefferson County; Jefferson City Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Each area was sampled using a single shocker operating at 110 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 4 December 1986: DO - 10.9 ppm, pH - 7.9, Temperature - 46.9 F, Conductivity - 426 micromhos/cm. Area 2, on 3 December 1986: DO - 10.9 ppm, pH - 7.8, Temperature - 50.0 F, Conductivity - 418 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 71 organisms, 0.5 ml. volumetric displacement, and represented 19 different taxa. Area 2 averaged 317 organisms, 4.0 ml. volumetric displacement, and represented 22 different taxa.

Fish Collected:

Species	Area 1				Area 2			
	No.	% by No.	Wt.	% by Wt.	No.	% by No.	Wt.	% by Wt.
Rock bass	12	13.2	2.25	46.4				
Bluegill	3	3.3	0.15	3.1				
Redbreast sunfish	2	2.2	t		3	0.8	0.05	1.2
Nongame Fish	12	13.2	1.9	39.2	29	8.1	2.05	50.0
Forage Fish	62	68.1	0.55	11.3	324	91.0	2.0	48.8
Total	91		4.85		356		4.1	

Comments - This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Game fish from both sites included rock bass (*Ambloplites*

rupestris), bluegill (*Lepomis macrochirus*), and redbreast sunfish (*L. auritus*). Rock bass and bluegill were collected only from the lower area while redbreast sunfish were collected from both sites. This stream also has a history of trout stocking from private applications, however, we found no trout in the areas sampled. It receives fairly heavy siltation, primarily from agricultural sources, and trash dumping occurs along the stream course. We collected a total of 14 fish species from both sites combined.

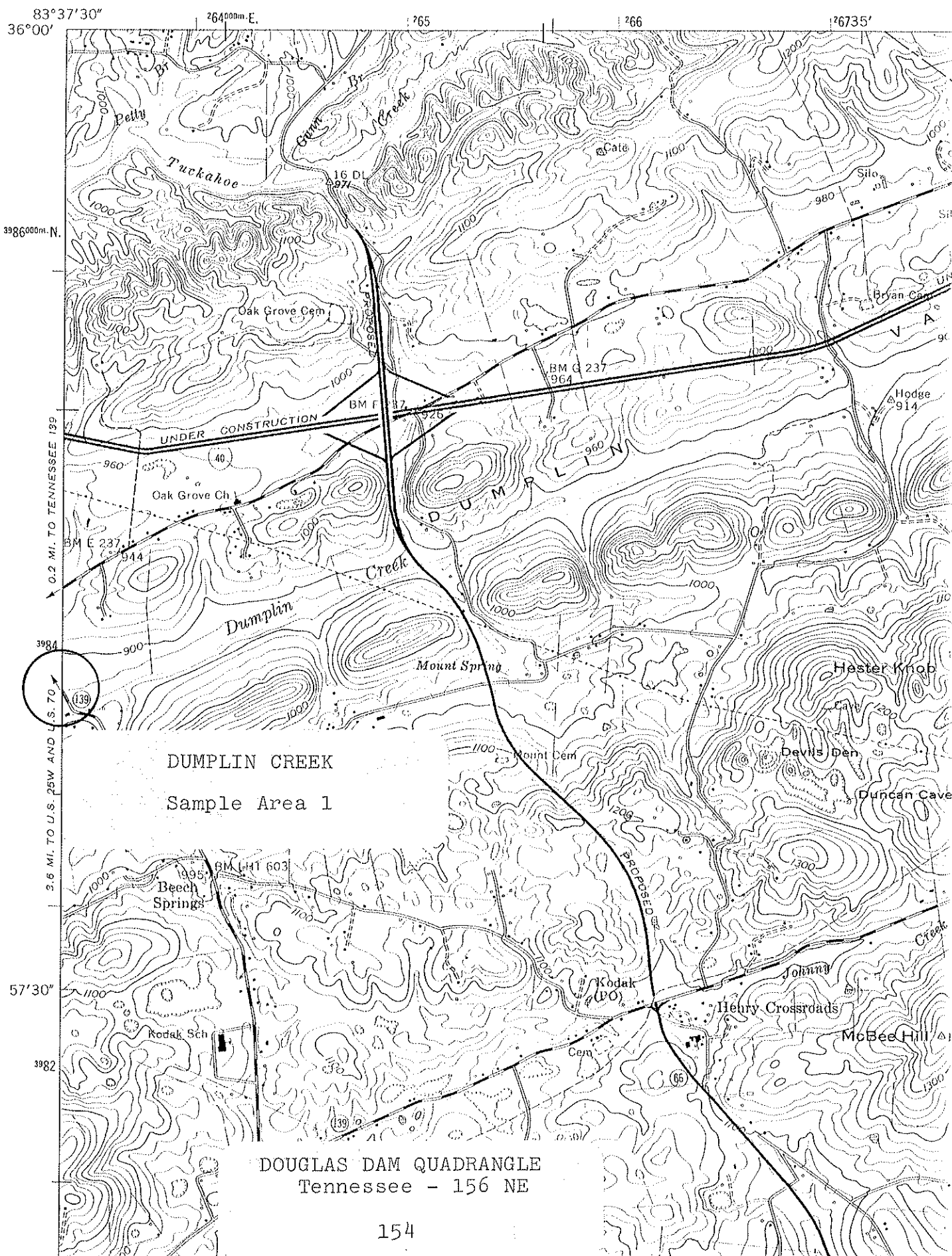
It is interesting to note the occurrence of the fathead minnow (*Pimephales promelas*) at the upper collection site. The fathead minnow is not a common fish in Tennessee streams, but scattered specimens have been taken in all drainages in the state where releases from bait buckets probably create temporary or persistent populations (Etnier and Starnes 1980).

The upper stream reach may be a good site to try to re-establish the native longear sunfish (*L. megalotis*) which has been replaced in much of the upper Tennessee River drainage by the exotic redbreast sunfish (Etnier et al. 1983).

Benthic macroinvertebrates from the lower sample area included Brachycentridae, Hydropsychidae, Hydroptilidae, Limnephilidae, Philopotamidae, and Psychomyiidae caddisflies, *Stenonema* mayflies, elmrid riffle beetles, and *Taeniopteryx* stoneflies. The periwinkle snail (*Goniobasis simplex*) was also present. Surber samples from the upper site averaged 317 organisms. These included Ephemerellidae, Ephemeridae, Heptageniidae, Leptophlebiidae, and Oligoneuriidae mayflies, Hydropsychidae and Philopotamidae caddisflies, and Perlidae, Perlodidae, and Taeniopterygidae stoneflies.

1256 11 SW
(MASCOT 155-SW)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead French Broad River Lat-Long 355813N - 833729W
Stream Dumplin Creek Length of Sample 600'
Area or Station Site # 1 Reach 06010107-38,0
County Sevier Date/Time 4 December 1986/1045
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 24.7' Average Depth 0.9' Maximum Depth 3.7'
2. Estimated Percent of Stream in Pools is 30 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 40 %
Clay 10 % Gravel 10 % Rubble 10 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 20 %
Bedrock - % Other Rubble 50%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of Stream, Average in 40 %, Poor in 30 %
7. Shade or Canopy Good over 30 % of Stream; Interferes some
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 19.6: Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 10.9 ppm Temp. 46.9 °F % Saturation 94
10. Present Weather Clear and cool, air temp. 40°F
11. Past Weather (last 24 hours) Partly cloudy to clearing, cold overnight.
12. D.O. 10.9 pH 7.9 Temp. 46.9 Conductivity 426
13. Comments: Sample location at bridge on Douglas Dam Road at Kodak.
Stream is fairly silty. Several deep pools and good cover for
fish. Lot of sand present. Receives some trash dumping.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Bridge at
Douglas Dam Rd.

Watershed French Broad River Lat-Long 355813N - 833729W
 Body of Water Dumplin Creek Date 4 December 1986
 County or River Mile Sevier Reach 06010107-38,0
 Type of Sampling Electrofishing Pool Elevation 772'
 Gear Type Backpack Shocker Time 1215-1330
600' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	3	3	t			
"	"	"	3	5	0.25			
"	"	"	1	6	0.1			
"	"	"	1	7	0.2			
"	"	"	2	8	0.6			
"	"	"	2	9	1.1			
<i>Lepomis auritus</i>		201	2	3	t			
<i>Lepomis macrochirus</i>		206	2	4	0.1			
"	"	"	1	5	0.05			
<i>Hypentelium nigricans</i>		166	12	3-10	1.9			
<i>Campostoma anomalum</i>		25	2	4-5	0.05			
<i>Hybopsis amblops</i>		155	3	1-3	t			
<i>Notropis galacturus</i>		253	1	4	t			
<i>Notropis spilopterus</i>		269	1	3	t			
<i>Etheostoma blennioides</i>		81	1	5	t			
<i>Etheostoma simoterum</i>		111	10	2	t			
<i>Cottus carolinae</i>		40	44	2-4	0.5			

* Label Parameter Listed

Field Notes: Few fish for the amount of effort; low numbers of fish. Saw a few rock bass escape capture.

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Dumplin Creek: Site # 1, Edge Surber sample

4 December 1986

Field # 024

Sevier Co., TN; At bridge on Douglas Dam Road in Kodak.
Coordinates: 355813N - 833729W. Douglas Dam, Tenn., # 156
NE Quad. Reach # 06010107-38,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
<u>Promoresia tardella</u> larvae	18
<u>Stenelmis</u> adults	2
DIPTERA:	
Tipulidae/ <u>Antocha</u>	6
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	11
ISOPODA:	
Asellidae/ <u>Lirceus</u>	3
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	3
<u>Hydropsyche</u>	3
Limnephilidae/ <u>Pycnopsyche</u>	1
Philopotamidae/ <u>Chimarra</u>	1
	<hr/>
	49

Volumetric Displacement was 0.5 ml.

Dumplin Creek: Site # 1, Midstream Surber sample

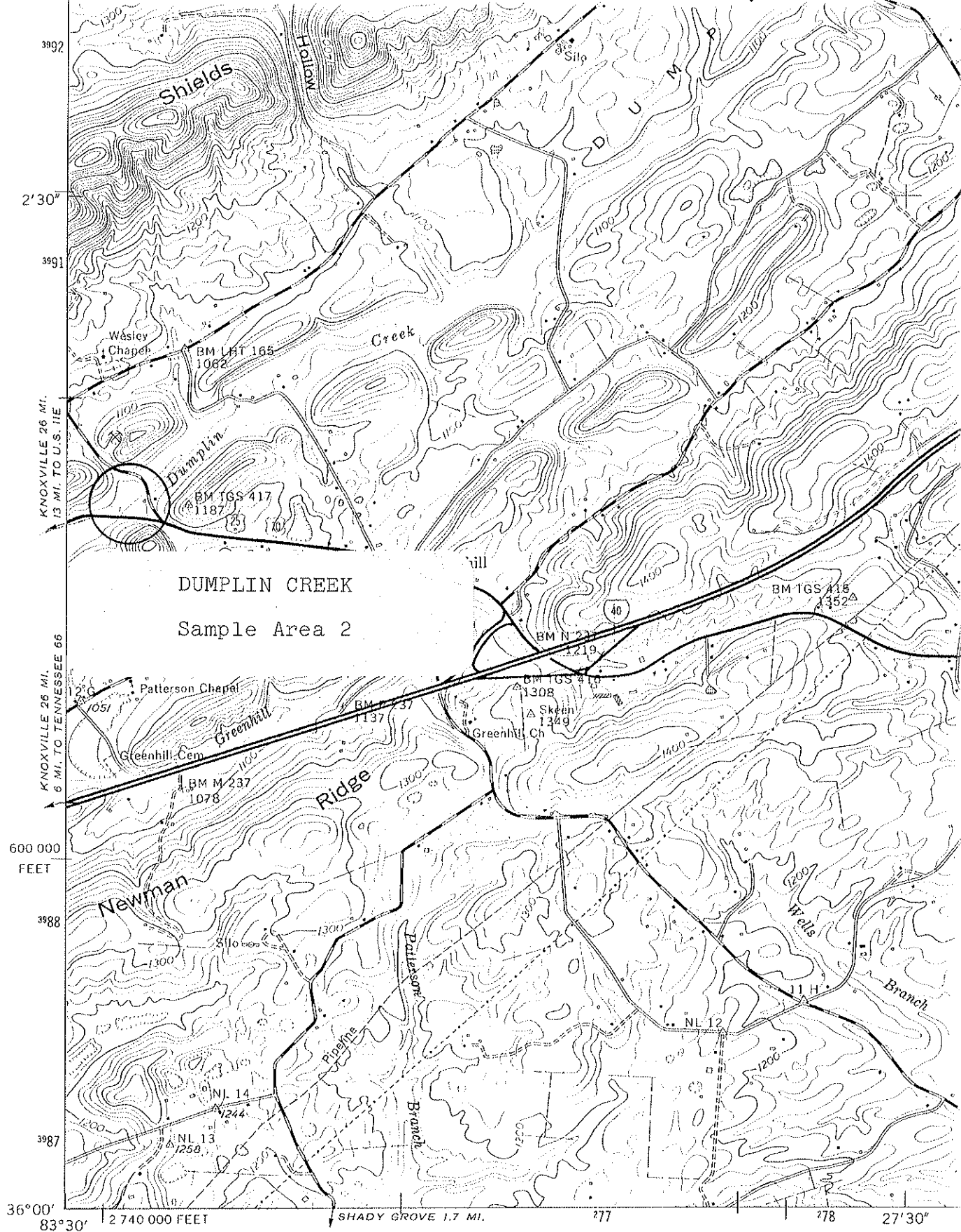
4 December 1986

Field # 024

Sevier Co., TN; At bridge on Douglas Dam Road in Kodak.
Coordinates: 355813N - 833729W. Douglas Dam, Tenn., # 156
NE Quad. Reach # 06010107-38,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
<u>Promoresia tardella</u> larvae	26
<u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae	3
Empididae	1
Tipulidae/ <u>Antocha</u>	7
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	5
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	2
PLECOPTERA:	
Taeniopterygidae/ <u>Taeniopteryx</u>	7
TRICHOPTERA:	
Unidentified pupa	1
Brachycentridae/ <u>Micrasema</u>	3
Hydropsychidae/ <u>Cheumatopsyche</u>	9
<u>Hydropsyche</u>	13
Hydroptilidae/Unidentified pupa	1
<u>Hydroptila</u>	9
Limnephilidae/ <u>Neophylax</u>	1
Psychomyiidae/ <u>Psychomyia flavida</u>	2
	93

Volumetric Displacement was 0.5 ml.



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, WPA, and TVA

Revised by TVA in 1961 by photogrammetric methods using
aerial photographs taken 1959 and by reference to TVA-USGS
quadrangle dated 1939. Map field checked by TVA, 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular
coordinate system

JEFFERSON CITY QUADRANGLE
Tennessee - 163 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead French Broad River Lat-Long 351933N - 833125W
Stream Dumplin Creek Length of Sample 500'
Area or Station Site # 2 Reach 06010107-38,0
County Jefferson Date/Time 3 December 1986/1030
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 16.4' Average Depth 0.9' Maximum Depth 2.6'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 40 % Silt 20 % Sand 5 %
Clay 30 % Gravel 5 % Rubble - % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
Bedrock - % Other Rubble 75%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of Stream, Average in 30 %, Poor in 30 %
7. Shade or Canopy Good over 70 % of Stream; Interferes somewhat
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 9.4 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 10.9 ppm Temp. 50.0°F % Saturation 95
10. Present Weather Cloudy, overcast, cool, air temp. 42°F
11. Past Weather (last 24 hours) Cloudy with light rain showers.
12. D.O. 10.9 pH 7.8 Temp. 50.0 Conductivity 418
13. Comments: Sample location above Highway 25W & 70 bridge. The
stream is fairly silty from agriculture practices and bank
sloughing. Benthos population appears very good though.
Considerable amount of trash dumping along stream course.

Site #2 - Just above Hwy.
25W & 70 bridge

500' sample length

* Label Parameter Listed

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

Dumplin Creek: Site # 2, Edge Surber sample

3 December 1986

Field # 023

Jefferson Co., TN; Just upstream of hwy. 25W & 70 bridge.
Coordinates: 360146N - 832948W. Jefferson City, Tenn.,
163 SW Quad. Reach # 06010107-38,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adults	3
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	1
DIPTERA:	
Chironomidae	4
Simuliidae pupa	1
Tabanidae/ <u>Tabanus</u>	1
Tipulidae/ <u>Antocha</u>	2
EPHEMEROPTERA:	
Ephemereillidae/ <u>Serratella</u>	2
Ephemeridae/ <u>Ephmera</u>	3
Heptageniidae/ <u>Heptagenia</u>	5
<u>Stenonema</u>	176
Leptophlebiidae/ <u>Paraleptophlebia</u>	1
Oligoneuriidae/ <u>Isonychia</u>	41
ISOPODA:	
Asellidae/ <u>Lirceus</u>	2
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	1
Sialidae/ <u>Sialis</u>	1
PLECOPTERA:	
Perlidae/ <u>Paragnetina</u> <u>media</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	66
<u>Hydropsyche</u>	2
Philopotamidae/ <u>Chimarra</u>	25
	<hr/>
	338

Volumetric Displacement was 4.5 ml.

Dumplin Creek: Site # 2, Midstream Surber sample

3 December 1986

Field # 023

Jefferson Co., TN; Just upstream of hwy. 25W & 70 bridge.
Coordinates: 360146N - 832948W. Jefferson City, Tenn.,
163 SW Quad. Reach # 06010107-38,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	3
DIPTERA:	
Unidentified pupae	2
Chironomidae	7
Tabanidae/ <u>Tabanus</u>	1
Tipulidae/ <u>Antocha</u>	8
EPHEMEROPTERA:	
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenonema</u>	102
Oligoneuriidae/ <u>Isonychia</u>	26
ISOPODA:	
Asellidae/ <u>Lirceus</u>	4
MEGALOPTERA:	
Sialidae/ <u>Sialis</u>	1
PLECOPTERA:	
Perlidae/ <u>Paragnetina media</u>	1
Perlodidae/ <u>Isoperla</u>	1
Taeniopterygidae/ <u>Taeniopteryx</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	85
<u>Hydropsyche betteni/depravata</u>	5
Philopotamidae/ <u>Chimarra</u>	48
	<hr/>
	296

Volumetric Displacement was 3.5 ml.

Nolichucky River

Two qualitative fishery surveys were conducted in October 1987:

Location and Length - Sample area 1 was 0.3 mi. upstream of the mouth of Bent Creek, at Nolichucky River mi. 15.15, and was sampled on 15 October 1987. The sample area was 700 ft. in length and averaged 253.7 ft. in width. Sample area 2 was at Bailey Bridge, Nolichucky River mi. 77.0, and was sampled on 16 October 1987. The sample area was 600 ft. in length and averaged 284.5 ft. in width. Site 1 was located at the Hamblen, Cocke, and Greene Counties line; Springvale Quadrangle. Site 2 was in Washington County; Telford Quadrangle.

Gear Type - Both sites were sampled using both boat and backpack electrofishing equipment. A shocker boat was used where deeper water permitted and shallow riffle areas were sampled with either a backpack shocker alone (Area 2) or a backpack shocker in combination with a 30 ft. seine (Area 1).

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 13 October 1987: DO - 11.9 ppm, pH - 8.3, Temperature - 57.7 F, Conductivity - 228 micromhos/cm. Area 2, on 14 October 1987: DO - 11.2 ppm, pH - 8.3, Temperature - 54.5 F, Conductivity - 105 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 64 organisms, 1.7 ml. volumetric displacement, and represented 14 different taxa. Area 2 averaged 59 organisms, 1.1 ml. volumetric displacement, and represented 10 different taxa.

Fish Collected: (See accompanying table)

Comments - Two areas of the Nolichucky River were sampled primarily to update fishery data for the agency, develop a fish species diversity list, and collect stream information for TADS. One site was located downstream of Davy Crockett Dam, but upstream of the Enka Dam at Lowlands. The other site was located upstream of Davy Crockett Reservoir.

Game fish collected from both sites included smallmouth bass (*Micropterus dolomieu*), spotted bass (*M. punctulatus*), largemouth bass (*M. salmoides*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), warmouth (*L. gulosus*), redear sunfish (*L. microlophus*), white crappie (*Pomoxis annularis*), and black crappie (*P. nigromaculatus*). Smallmouth bass, spotted bass, rock bass, white crappie, redbreast sunfish, warmouth, and

reedear sunfish were collected from both sites while largemouth bass, black crappie, and bluegill were collected from the upper site only. Also, channel catfish (*Ictalurus punctatus*) were collected at the downstream site while flathead catfish (*Pylodictis olivaris*) were collected from both sites.

The Nolichucky River has had a long history of pollution. Heavy siltation from extensive mica mining and sand and gravel dredging in North Carolina and the upper river tributaries along with municipal sewage and industrial pollution have all been documented (Mullican et al. 1960; Etnier 1973; McKinney et al. 1981). However, in recent years water quality has significantly improved and is reflected in our collections. We collected a total of 51 fish species from both sites combined. This is more than double the number reported in fish collections made in 1959 (Ward 1960). At that time, most were tolerant forms and low numbers of game fish were collected. Our sampling represented not only an increase in fish species diversity but also an increase in total numbers of fish collected. The lower Nolichucky (downstream of Davy Crockett) is known as an excellent smallmouth bass fishery and supports at least 5 species of threatened or endangered aquatic organisms. There is also evidence that the upper river segment is recovering based on the re-establishment of a smallmouth bass fishery (McKinney et al. 1981).

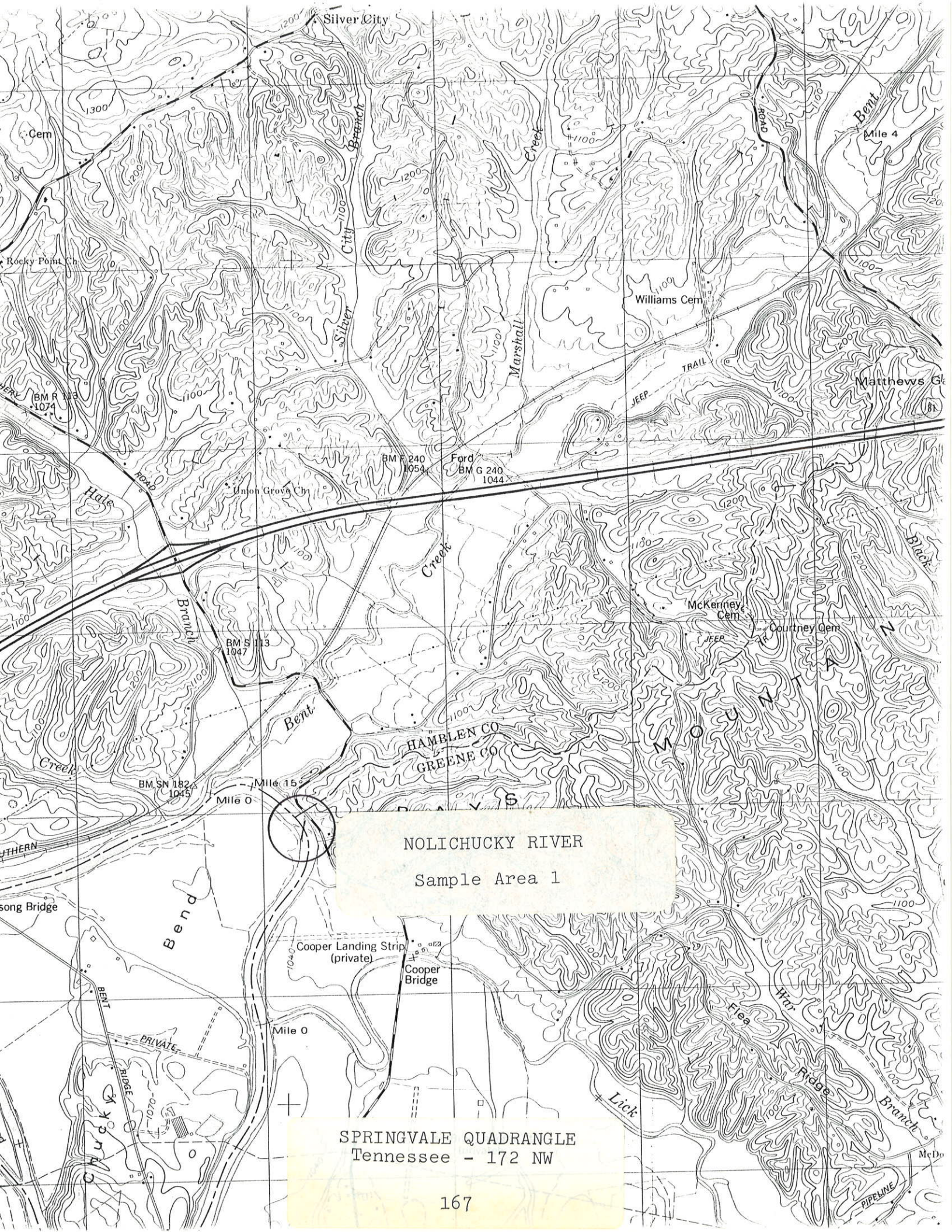
It is interesting to note the collection of one specimen of the highfin carpsucker (*Carpionodes velifer*) from our upper site. This is the first record of this fish from the state since 1975 when a juvenile was collected from the Douglas Dam tailwaters (Etnier and Starnes 1980). The highfin carpsucker was apparently fairly numerous in the Nolichucky in the late 1950s when as many as 26 were reportedly collected from one sample site (Ward 1960). The current status of this fish is termed "Deemed in Need of Management" by TWRA and of "Special Concern" by the Tennessee Heritage Program (Starnes and Etnier 1980). Our specimen was 13.9 in. TL and was donated to the University of Tennessee Research Collection of Fishes (UT 45.704).

Also of interest is the sharphead darter (*Etheostoma acuticeps*). Until the discovery of a population in the lower Nolichucky River in 1975, only 37 specimens had ever been collected, and the species was considered extinct (Bryant 1979). More recent collections of the sharphead darter from localities just above Davy Crockett Reservoir to upstream of Erwin remove it from any imminent threat of extinction (Etnier and Starnes 1980). Our recent collections indicated that this population is persisting in adequate numbers. We collected 65 from the lower site and 28 from the area upstream of Davy Crockett Reservoir.

Benthic macroinvertebrates from our samples included Baetidae, Heptageniidae, Oligoneuriidae, and Tricorythidae mayflies, Hydropsychidae caddisflies, chironomid and simuliid larvae and pupae, and the perlid stonefly *Phasganophora capitata*. Asian clams (*Corbicula fluminea*), and the river snail (*Anculosa subglobosa*) were also present.

Fish collected in two qualitative samples of the Nolichucky River.

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Smallmouth bass	11	1.5	1.28	2.0	11	0.8	1.11	2.1
Spotted bass	14	1.9	3.45	5.5	6	0.4	0.23	0.4
Largemouth bass					5	0.3	1.19	2.3
Rock bass	1	0.1	0.29	0.5	1	0.1	0.18	0.3
White crappie	1	0.1	0.01		1	0.1	0.49	0.9
Black crappie					2	0.1	1.15	2.2
Bluegill					20	1.4	1.12	2.1
Redbreast sunfish	4	0.6	t		85	5.8	2.58	4.9
Warmouth	1	0.1	t		1	0.1	0.19	0.4
Redear sunfish	1	0.1	0.02		1	0.1	0.1	0.2
Nongame Fish	52	7.2	54.15	85.9	85	5.8	38.48	73.1
Forage Fish	639	88.3	3.83	6.1	1240	85.0	5.82	11.1
Total	724		63.03		1458		53.64	



NOLICHUCKY RIVER

Sample Area 1

SPRINGVALE QUADRANGLE
Tennessee - 172 NW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Nolichucky River Lat-Long 361048N - 830957W
Stream Nolichucky River Length of Sample 700'
Area or Station Site # 1 Reach 06010108-4.0
County Hamblen, Cocke, & Greene Date/Time 13 October 1987/1430
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 253.7' Average Depth 1.7' Maximum Depth 5.4'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 10 % Silt 30 % Sand 20 %
Clay 5 % Gravel 5 % Rubble 10 % Boulders 10 %
Bedrock 10 % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
Bedrock 30 % Other - % Rubble 30 % Gravel 5 % Boulders 10 %
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 40 %, Poor in 20 %.
7. Shade or Canopy Good over 10 % of Stream.
8. Flow (c.f.s.) 379.5 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 11.9 ppm Temp. 57.7 °F % Saturation 115
10. Present Weather Clear, sunny, cool, and breezy; air temp. - 60° F.
11. Past Weather (last 24 hours) Partly cloudy and cold overnight.
12. D.O. 11.9 pH 8.3 Temp. 57.7 Conductivity 228
13. Comments: Sample location 0.3 mi. above the mouth of Bent Creek
at Nolichucky River mile 15.15, just off Fish Hatchery Road.

Site #1 - Fish Hatchery
Road site

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Micropterus dolomieu</i>	218	3	3	0.02			
" "	"	4	4	0.13			
" "	"	1	7	0.16			
" "	"	1	8	0.24			
" "	"	1	9	0.31			
" "	"	1	10	0.42			
<i>Micropterus punctulatus</i>	219	2	3	0.01			
" "	"	4	4	0.04			
" "	"	1	6	0.13			
" "	"	2	7	0.33			
" "	"	1	8	0.24			
" "	"	1	9	0.37			
" "	"	2	10	0.9			
" "	"	1	14	1.43			
<i>Pomoxis annularis</i>	343	1	4	0.01			
<i>Lepomis auritus</i>	201	4	2	t			
<i>Lepomis gulosus</i>	204	1	1	t			
<i>Lepomis microlophus</i>	209	1	3	0.02			
<i>Ambloplites rupestris</i>	13	1	7	0.29			
<i>Ictalurus punctatus</i>	176	1	4	0.02			
" "	"	1	8	0.15			
" "	"	1	17	1.8			
" "	"	1	18	2.35			
" "	"	2	20	5.85			
" "	"	1	21	4.0			

Field Notes: 700' sample length.

WP-C525

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Nolichucky River
Body of Water Nolichucky River.
County or River Mile Hamblen, Cocke,
& Greene
Type of Sampling _____
Gear Type Boat and backpack
electrofishing

Lat-Long 361048N - 830957W
Date 15 October 1987
Reach 06010108-4,0
Pool Elevation 1025'
Time 1100-1200 and 1430-1530

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Pylodictus olivaris</i>	346	2	7	0.15			
" "	"	1	13	0.85			
" "	"	1	18	2.4			
" "	"	1	19	2.5			
<i>Noturus eleutherus</i>	283	17	1-3	0.06			
<i>Hypentelium nigricans</i>	166	11	4-10	2.14			
<i>Moxostoma anisurum</i>	226	2	16-18	3.45			
<i>Moxostoma erythrurum</i>	230	7	4-16	5.54			
<i>Moxostoma</i>							
<i>macrolepidotum</i>	231	6	4-19	6.05			
<i>Ictiobus bubalus</i>	177	3	19-20	10.1			
<i>Dorosoma cepedianum</i>	48	6	11-16	6.5			
<i>Lepisosteus osseus</i>	198	1	16	0.3			
<i>Camptostoma anomalum</i>	25	10	3-5	0.3			
<i>Hybopsis amblops</i>	155	41	2-3	0.14			
<i>Hybopsis insignis</i>	160	31	3-4	0.31			
<i>Nocomis micropogon</i>	234	42	2-5	0.77			
<i>Notropis chrysocephalus</i>	249	10	2-3	0.06			
<i>Notropis leuciodus</i>	255	2	3	0.01			
<i>Notropis rubellus</i>	260	128	1-3	0.19			
<i>Notropis spilopterus</i>	269	42	1-4	0.16			
<i>Notropis volucellus</i>	277	54	1-2	0.03			
<i>Phenacobius</i>							
<i>crassilabrum</i>	328	2	3	0.03			
<i>Phenacobius uranops</i>	330	4	3-4	0.05			

* Label Parameter Listed Continued on next page

Field Notes: 700' sample length.

Name of Collector(s): Rick Bivens, David Lane, Chester Ellison, Earl Seay,
Daniel Pollard, and Stan Lambert

WR-G525

Nolichucky River: Site # 1, Edge Surber sample

13 October 1987

Field # 076

Hamblen, Greene, & Cocke Co., TN; Nolichucky River mi. 15.15.
Coordinates: 361048N - 830957W. Springvale, Tenn., 172 NW
Quad. Reach # 06010108-4,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adults	4
DIPTERA:	
Chironomidae	49
Simuliidae	3
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	6
Heptageniidae/ <u>Stenonema</u>	10
Oligoneuriidae/ <u>Tsonychia</u>	5
Tricorythidae/ <u>Tricorythodes</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	8
MEGALOPTERA:	
Corydalidae/ <u>Corydalis cornutus</u>	3
PLECOPTERA:	
Perlidae/ <u>Phasganophora capitata</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	5
<u>H. venularis</u>	1
	<hr/>
	96

Volumetric Displacement was 0.55 ml.

Nolichucky River: Site # 1, Midstream Surber sample

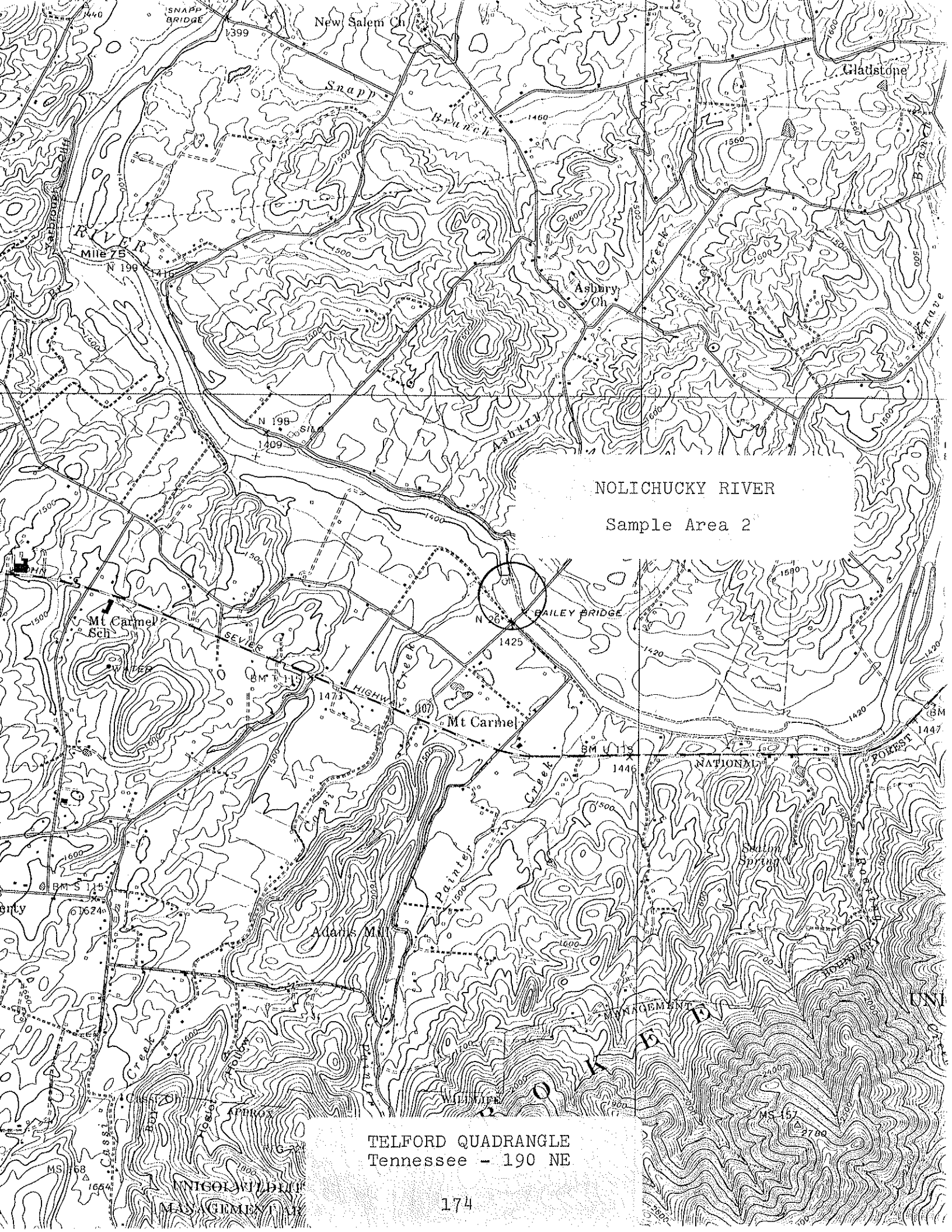
13 October 1987

Field # 076

Hamblen, Greene, & Cocke Co., TN; Nolichucky River mi. 15.15.
Coordinates: 361048N - 830957W. Springvale, Tenn., 172 NW
Quad. Reach # 06010108-4,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
adults	2
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Heptageniidae/ <u>Stenonema</u>	8
Oligoneuriidae/ <u>Isonychia</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	10
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	3
ODONATA:	
Coenagrionidae	1
OLIGOCHAETA:	2
PLECOPTERA:	
Perlidae/ <u>Phasganophora capitata</u>	1
	<hr/>
	32

Volumetric Displacement was 2.75 ml.



NOLICHUCKY RIVER
Sample Area 2

TELFORD QUADRANGLE
Tennessee - 190 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Nolichucky River Lat-Long 360925N - 823530W
Stream Nolichucky River Length of Sample 600'
Area or Station Site # 2 Reach 06010108-11,2
County Washington Date/Time 14 October 1987/1430
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 284.5' Average Depth 2.55' Maximum Depth 7.4'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 10 % Silt 30 % Sand 40 %
Clay 5 % Gravel 5 % Rubble 5 % Boulders 5 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 20 % Sand 30 %
Bedrock - % Other Rubble 40 % Gravel 5 % Boulders 5 %
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 40 %, Poor in 30 %.
7. Shade or Canopy Good over 10 % of Stream.
8. Flow (c.f.s.) 522.3 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 11.2 ppm Temp. 54.5 °F % Saturation 103
10. Present Weather Clear and cool; air temp. - 67°F
11. Past Weather (last 24 hours) Clear and cool.
12. D.O. 11.2 pH 8.3 Temp. 54.5 Conductivity 105
13. Comments: Sample location at Bailey Bridge, Nolichucky River mile
77.0.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Nolichucky River
 Body of Water Nolichucky River
 County or River Mile Washington
 Type of Sampling Electrofishing
 Gear Type Boat and backpack on
riffle areas.

Lat-Long 360925N - 823530W
 Date 16 October 1987
 Reach 06010108-11,2
 Pool Elevation 1401'
 Time 1100-1200

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus dolomieu</i>		218	3	4	0.11			
"	"	"	2	5	0.08			
"	"	"	3	6	0.31			
"	"	"	2	7	0.24			
"	"	"	1	10	0.37			
<i>Micropterus punctulatus</i>		219	1	3	0.02			
"	"	"	3	4	0.07			
"	"	"	2	6	0.14			
<i>Micropterus salmoides</i>		220	2	5	0.09			
"	"	"	1	6	0.07			
"	"	"	1	9	0.33			
"	"	"	1	12	0.7			
<i>Pomoxis annularis</i>		343	1	10	0.49			
<i>Pomoxis nigromaculatus</i>		244	1	9	0.48			
"	"	"	1	11	0.67			
<i>Ambloplites rupestris</i>		13	1	6	0.18			
<i>Lepomis auritus</i>		201	49	1	0.05			
"	"	"	9	2	0.03			
"	"	"	2	3	0.06			
"	"	"	6	4	0.31			
"	"	"	12	5	0.97			
"	"	"	5	6	0.77			
"	"	"	2	7	0.39			
<i>Lepomis gulosus</i>		204	1	6	0.19			
Continued		on	next	page				

* Label Parameter Listed

Field Notes: 600' sample length.

Name of Collector(s): Rick Bivens, Chester Ellison, David Lane, Earl Seay,

WR-C525

Daniel Pollard, and Stan Lambert

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Nolichucky RiverLat-Long 360925N - 823530WBody of Water Nolichucky RiverDate 16 October 1987County or River Mile WashingtonReach 06010108-11,2Type of Sampling ElectrofishingPool Elevation 1401'Gear Type Boat and backpack on
riffle areas.Time 1100-1200

SPECIES		CODE	NUMBER	LENGTH	WT.	*	*	*
Name								
<i>Lepomis macrochirus</i>		206	12	4	0.52			
"	"	"	8	5	0.6			
<i>Lepomis microlophus</i>		209	1	6	0.1			
<i>Pylodictus olivaris</i>		346	1	14	1.15			
* <i>Carpiodes velifer</i>		30	1	14	1.49			
<i>Moxostoma anisurum</i>		226	1	8	0.19			
<i>Moxostoma duquesnei</i>		229	11	6-8	1.65			
<i>Moxostoma erythrurum</i>		230	33	7-16	12.3			
<i>Moxostoma</i>								
<i>macrolepidotum</i>		231	8	8-17	6.1			
<i>Hypentelium nigricans</i>		166	22	5-14	3.52			
<i>Dorosoma cepedianum</i>		48	5	6-7	0.45			
<i>Cyprinus carpio</i>		47	1	28	11.6			
<i>Camptostoma anomalum</i>		25	81	2-6	3.4			
<i>Hybopsis insignis</i>		160	3	3-4	0.04			
<i>Nocomis micropogon</i>		234	26	2-7	1.2			
<i>Notropis galacturus</i>		253	6	1-3	0.01			
<i>Notropis rubellus</i>		260	18	1-2	0.03			
<i>Notropis spilopterus</i>		269	301	1-2	0.07			
<i>Notropis telescopus</i>		272	1	2	t			
<i>Notropis volucellus</i>		277	656	1-2	0.18			
<i>Phenacobius</i>								
<i>crassilabrum</i>		328	3	3-4	0.05			
<i>Pimephales notatus</i>		334	19	1-2	0.02			
Continued		on	next	page				

* Label Parameter Listed * Specimen was donated to UT Ichthyology collection.

Field Notes: 600' sample length.Name of Collector(s): Rick Bivens, Chester Ellison, David Lane, Earl Seay,
Daniel Pollard, and Stan Lambert

WR-C525

Nolichucky River: Site # 2, Edge Surber sample

14 October 1987

Field # 077

Washington Co., TN; Bailey Bridge at Nolichucky River mi.
77.0. Coordinates: 360925N - 823530W. Telford, Tenn.,
190 NE Quad. Reach # 06010108-11,2.

TAXA	NUMBER
DIPTERA:	
Unidentified pupae	7
Chironomidae larvae	7
adult	1
EPHEMEROPTERA:	
Oligoneuriidae/ <u>Isonychia</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	1
OLIGOCHAETA:	2
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Hydropsyche</u>	1
	<hr/>
	21

Volumetric Displacement was 0.5 ml.

Nolichucky River: Site # 2, Midstream Surber sample

14 October 1987

Field # 077

Washington Co., TN; Bailey Bridge at Nolichucky River mi.
77.0. Coordinates: 360925N - 823530W. Telford, Tenn.,
190 NE Quad. Reach # 06010108-11,2.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Promoresia tardella</u> larvae	2
DIPTERA:	
Unidentified pupae	5
Chironomidae larvae	32
pupae	2
Simuliidae larvae	4
pupae	5
Tipulidae/ <u>Antocha</u>	2
EPHEMEROPTERA:	
Oligoneuriidae/ <u>Isonychia</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalis cornutus</u>	2
OLIGOCHAETA:	2
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	34
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche venularis</u>	6
	<hr/>
	97

Volumetric Displacement was 2.0 ml.

Lick Creek

Two qualitative fishery surveys were conducted in July 1987:

Location and Length - Tributary to the Nolichucky River. Sample area 1 was just upstream of Scoot Bridge on Highway 348, stream mi. 3.8. The sample area was 300 ft. in length and averaged 51.7 ft. in width. Sample area 2 was located at a county road bridge west of Highway 172, stream mi. 47.2. The sample area was 300 ft. in length and averaged 32.2 ft. in width. Both sites were in Greene County and were sampled on 1 July 1987. Site 1, Springvale Quadrangle. Site 2, Baileyton Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Area 1 was sampled using only one shocker at 110 v. AC and shocking into a 30 ft. seine due to the turbidity. Area 2 was sampled with two shockers operating side by side at 110 v. AC.

Water Quality - Data were taken from midstream with a 4041 Hydrolab on 1 July 1987. Area 1: DO - 11.7 ppm, pH - 7.5, Temperature - 74.1 F, Conductivity - 420 micromhos/cm. Area 2: DO - 9.1 ppm, pH - 7.8, Temperature - 73.4 F, Conductivity - 386 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 6 organisms, 0.15 ml. volumetric displacement, and represented 6 different taxa. Area 2 averaged 14 organisms, 0.3 ml. volumetric displacement, and represented 12 different taxa.

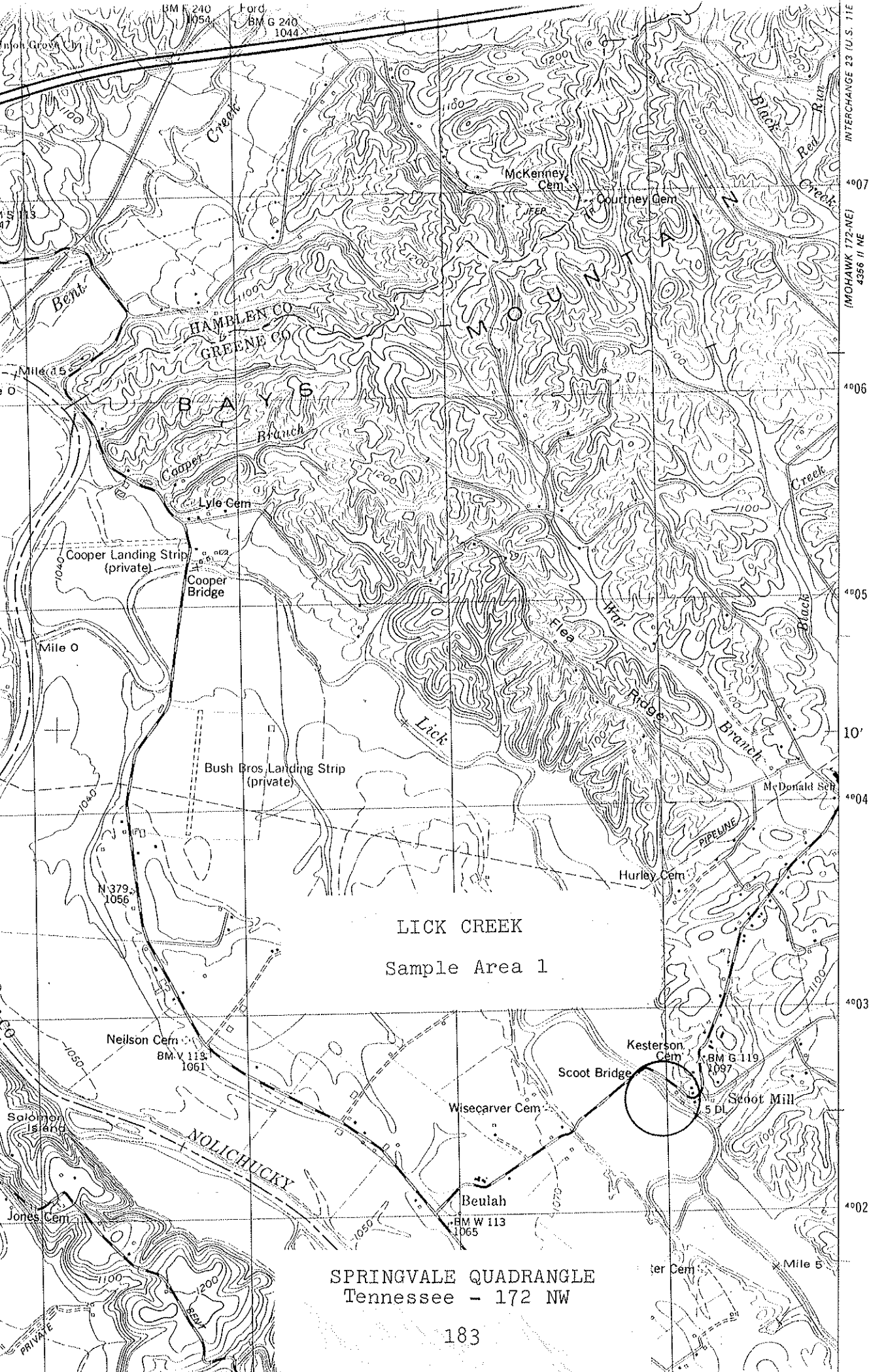
Fish Collected:

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Largemouth bass					1	0.5	0.3	3.5
Spotted bass	5	1.9	1.15	17.2	7	3.8	1.93	22.5
Rock bass					13	7.1	0.85	9.9
Bluegill	1	0.4	0.2	3.0				
Redbreast sunfish	1	0.4	0.1	1.5	45	24.7	1.71	19.9
Warmouth	1	0.4	0.2	3.0				
Nongame Fish	29	10.8	3.7	55.3	37	20.3	3.19	37.1
Forage Fish	232	86.2	1.34	20.2	79	43.4	0.61	7.1
Total	269		6.69		182		8.59	

Comments:

This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Game fish from both sample sites included largemouth bass (*Micropterus salmoides*), spotted bass (*M. punctulatus*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), warmouth (*L. gulosus*), and redbreast sunfish (*L. auritus*). Largemouth bass and rock bass were collected only from the upper area while spotted bass were collected in about equal numbers from both sites. Redbreast sunfish made up about 25% of the total number of fish collected from the upper area. Also, channel catfish (*Ictalurus punctatus*) and one small flathead catfish (*Pylodictis olivaris*) were collected from the lower sample area. Sampling was difficult as the stream is very turbid and consequently many fish escaped capture. The stream receives heavy siltation mainly from agricultural sources all along the watershed. We collected a total of 26 fish species from both sites combined, most of which are species typical of streams with non-point-source pollution.

The degree of siltation is also reflected in the low numbers of benthic macroinvertebrates collected from both sites. Samples from area 1 averaged only 6 organisms while area 2 averaged 14 organisms. These represented Baetidae, Caenidae, Heptageniidae, and Oligoneuriidae mayflies, and elmids riffle beetles. Asian clams (*Corbicula fluminea*) and the river snail (*Pleurocera canaliculatum*) were also present. No caddisflies were collected in any sample.



INTERCHANGE 23 (U.S. 17E)
(MOHAWK 172-NE) 4356 II NE
4007
4006
4005
10'
4004
4003
4002

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Nolichucky River Lat-Long 360905N - 830807W
Stream Lick Creek Length of Sample 300'
Area or Station Site # 1 Reach 06010108-35
County Greene Date/Time 1 July 1987/1130
Data Collected By Rick D. Bivens, David Lane, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 51.7' Average Depth 1.3' Maximum Depth 3.0'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud 30 % Silt 40 % Sand 5 %
Clay 20 % Gravel - % Rubble 5 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 10 %
Bedrock - % Other Rubble 50% Gravel 10%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 40 %, Poor in 20 %.
7. Shade or Canopy Good over 80 % of Stream.
8. Flow (c.f.s.) 48.4 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 7.3 ppm Temp. 74.1 °F % Saturation 85
10. Present Weather Clear, hot, and humid; air temp. 84° F
11. Past Weather (last 24 hours) Clear, hot, and humid.
12. D.O. 11.7 pH 7.5 Temp. 74.1 Conductivity 420
13. Comments: Sample location just above Scoot Bridge on Hwy. 348.
Slightly low and very turbid, which is normally the color. The
stream over its course flows through land primarily used for
agriculture.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Nolichucky River
Body of Water Lick Creek
County or River Mile Greene
Type of Sampling Electrofishing
Gear Type Backpack shocking into 30'
seine, 110 v. AC

Lat-Long 360905N - 830807W
Date 1 July 1987
Reach 06010108-35
Pool Elevation 1035'
Time 1300-1500

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus punctulatus</i>		219	1	11	0.5			
"	"	"	2	8	0.5			
"	"	"	1	6	0.1			
"	"	"	1	4	0.05			
<i>Lepomis auritus</i>		201	1	4	0.1			
<i>Lepomis gulosus</i>		204	1	6	0.2			
<i>Lepomis macrochirus</i>		206	1	6	0.2			
<i>Ictalurus punctatus</i>		176	1	19	1.7			
"	"	"	1	7	0.1			
"	"	"	1	4	t			
"	"	"	1	1	t			
<i>Pylodictis olivaris</i>		346	1	4	t			
<i>Hypentelium nigricans</i>		166	17	2-10	1.3			
<i>Moxostoma erythrurum</i>		230	7	4-9	0.6			
<i>Camptostoma anomalum</i>		25	8	1-2	t			
<i>Hybopsis amblops</i>		155	5	2	t			
<i>Nocomis micropogon</i>		234	6	2-10	0.67			
<i>Notropis chrysocephalus</i>		249	2	4	t			
<i>Notropis rubellus</i>		260	33	2	0.09			
<i>Notropis spilopterus</i>		269	37	2-4	0.1			
<i>Notropis volucellus</i>		277	6	2	t			
<i>Phenacobius uranops</i>		333	6	3-4	0.05			
<i>Etheostoma blennioides</i>		81	37	1-3	0.2			
<i>Etheostoma rufilineatum</i>		108	4	1-2	t			
Continued		on	next	page				

* Label Parameter Listed

Field Notes: Stream very turbid, fish recovery was probably poor. Two
hours sampling time with shocker and seine.

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

WR-C525

Lick Creek: Site # 1, Edge Surber sample

1 July 1987

Field # 043

Greene Co., TN; Scoot Bridge on hwy. 348 at stream mi. 3.8.
Coordinates: 360905N - 830807W. Springvale, Tenn., # 172
NW Quad. Reach # 06010108-35.

TAXA	NUMBER
<hr/>	
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Heptageniidae/ <u>Stenonema</u>	4
Oligoneuriidae/ <u>Isonychia</u>	1
	<hr/>
	6

Volumetric Displacement was 0.15 ml.

Lick Creek: Site # 1, Midstream Surber sample

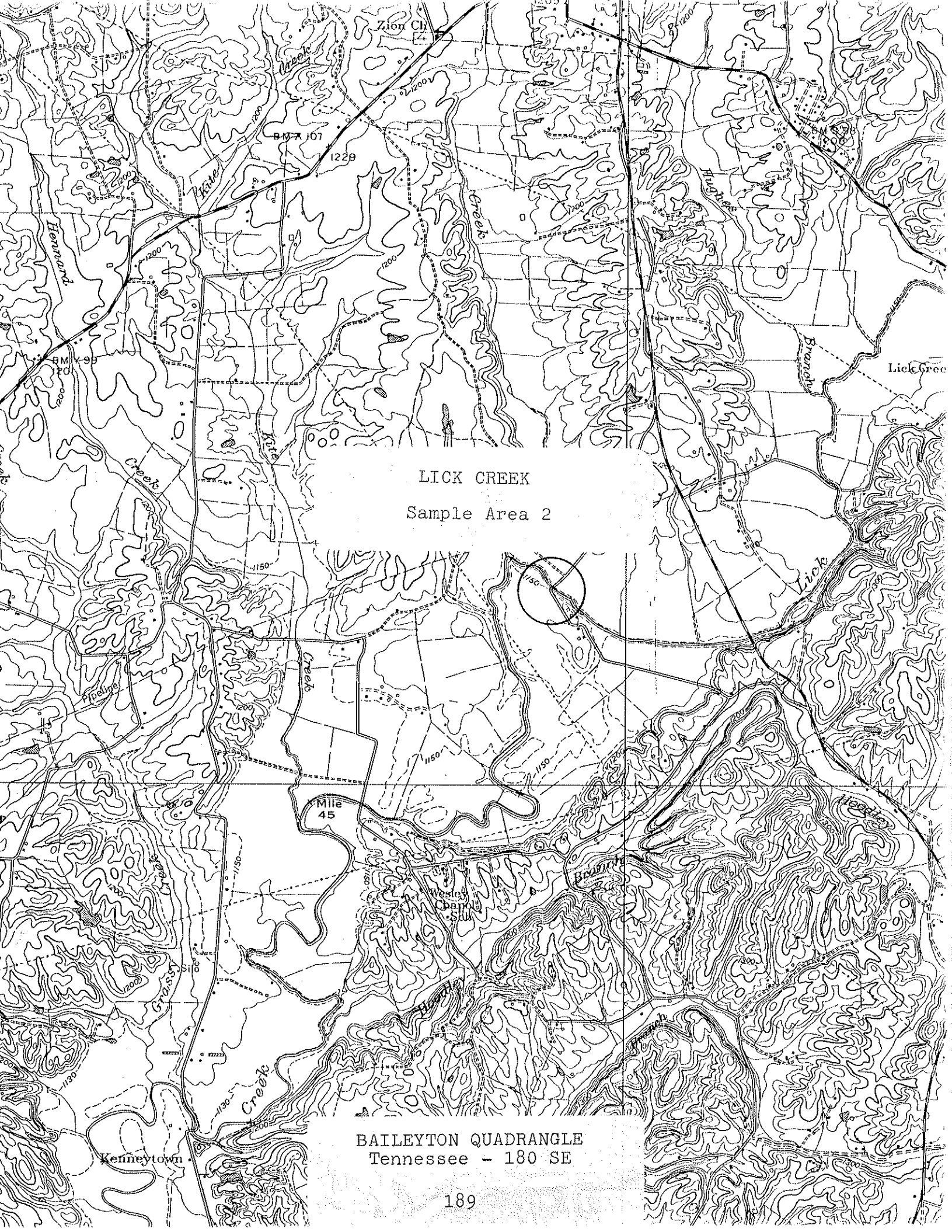
1 July 1987

Field # 043

Greene Co., TN; Scoot Bridge on hwy. 348 at stream mi. 3.8.
Coordinates: 360905N - 830807W. Springvale, Tenn., # 172
NW Quad. Reach # 06010108-35.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	2
MEGALOPTERA:	
Sialidae/ <u>Sialis</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	2
	<hr/>
	6

Volumetric Displacement was 0.15 ml.



LICK CREEK
Sample Area 2

BAILEYTON QUADRANGLE
Tennessee - 180 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Nolichucky River Lat-Long 361804N - 825016W
Stream Lick Creek Length of Sample 300'
Area or Station Site # 2 Reach 06010108-38
County Greene Date/Time 1 July 1987/1700
Data Collected By Rick D. Bivens, David Lane, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 32.2' Average Depth 0.6' Maximum Depth 1.8'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 20 % Silt 20 % Sand 20 %
Clay 10 % Gravel 10 % Rubble 20 % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 10 % Sand 10 %
Bedrock - % Other Rubble 50% Gravel 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 40 %, Poor in 20 %.
7. Shade or Canopy Good over 80 % of Stream.
8. Flow (c.f.s.) 20.1 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 9.1 ppm Temp. 73.4 °F % Saturation 105
10. Present Weather Partly cloudy with occasional showers; air temp. 78° F
11. Past Weather (last 24 hours) Clear to partly cloudy, hot and humid.
12. D.O. 9.1 pH 7.8 Temp. 73.4 Conductivity 386
13. Comments: Sample location at county road bridge at stream mile 47.2.
Stream is wide and fairly shallow, fairly turbid, with good habitat
for fish. Low gradient, land use primarily agriculture.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Nolichucky River
Body of Water Lick Creek
County or River Mile Greene
Type of Sampling Electrofishing
Gear Type 2 Backpack shockers side
by side, 110 v. AC

Lat-Long 361804N - 825016W
Date 1 July 1987
Reach 06010108-38
Pool Elevation 1140'
Time 1745-1845

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	2	3	t			
"	"	"	4	4	0.15			
"	"	"	3	5	0.2			
"	"	"	4	6	0.5			
<i>Micropterus punctulatus</i>		219	3	4	0.5			
"	"	"	1	7	0.15			
"	"	"	1	8	0.23			
"	"	"	1	9	0.4			
"	"	"	1	11	0.65			
<i>Micropterus salmoides</i>		220	1	9	0.3			
<i>Lepomis auritus</i>		201	14	2	0.08			
"	"	"	9	3	0.12			
"	"	"	13	4	0.51			
"	"	"	6	5	0.5			
"	"	"	2	6	0.3			
"	"	"	1	7	0.2			
<i>Catostomus commersoni</i>		32	2	2-4	t			
<i>Hypentelium nigricans</i>		166	31	1-9	3.05			
<i>Moxostoma erythrum</i>		230	4	5	0.14			
<i>Campostoma anomalum</i>		25	8	1-3	t			
<i>Hybopsis amblops</i>		155	2	2-3	t			
<i>Notropis chrysocephalus</i>		249	7	3-4	0.16			
<i>Notropis galacturus</i>		253	16	1-5	0.28			
<i>Notropis rubellus</i>		260	1	2	t			
Continued		on	next	page				

* Label Parameter Listed

Field Notes: Water turbid, after side by side shocking, made 5 seine
hauls with shocker; 300' sample length.

Name of Collector(s): Rick D. Bivens, David Lane, and Chester J. Ellison

Lick Creek: Site # 2, Edge Surber sample

1 July 1987

Field # 044

Greene Co., TN; County road bridge at stream mi. 47.2.
Coordinates: 361804N - 825016W. Baileyton, Tenn., # 180
SE Quad. Reach # 06010108-38.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Macronychus glabratus</u> adult	1
<u>Stenelmis</u> larvae	5
adults	2
DIPTERA:	
Tipulidae/ <u>Limnophila</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	1
Caenidae/ <u>Caenis</u>	1
Oligoneuridae/ <u>Isonychia</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	3
	<hr/>
	15

Volumetric Displacement was 0.35 ml.

Lick Creek: Site # 2, Midstream Surber sample

1 July 1987

Field # 044

Greene Co., TN; County road bridge at stream mi. 47.2.
Coordinates: 361804N - 825016W. Baileyton, Tenn., # 180
SE Quad. Reach # 06010108-38.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	1
<u>Stenonema</u>	5
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera</u> <u>canaliculatum</u>	2
OLIGOCHAETA:	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	2
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Volumetric Displacement was 0.25 ml.

Pigeon River

Three quantitative fishery surveys were conducted in March 1987:

Location and Length - Sample area 1 was at Brown Island, Pigeon River mi. 17.0. The sample area was 180 ft. in length and averaged 106 ft. in width, and on the lefthand side of the island. Sample area 2 was at the Hartford Bridge. It was 170 ft. in length and averaged 53.5 ft. in width, and on the righthand side of an island. Sample area 3 was downstream of Walters Power House, at Pigeon River mi. 25.1. The sample area was 170 ft. in length and averaged 93 ft. in width. All three sites were in Cocke County and were sampled on 31 March 1987. Sites 1 and 2, Hartford Quadrangle. Site 3, Waterville Quadrangle.

Gear Type - All three sites were sampled using explosives. Primacord with a block-off net anchored downstream to collect fish was used at each sample area.

Water Quality - Data were taken from midstream with a 4041 Hydrolab on 30 April 1987. Area 1: DO - 9.4 ppm, pH - 7.9, Temperature - 63.1 F, Conductivity - 169 micromhos/cm. Area 2: DO - 9.3 ppm, pH - 7.8, Temperature - 62.8 F, Conductivity - 156 micromhos/cm. Area 3: DO - 9.6 ppm, pH - 7.9, Temperature - 59.4 F, Conductivity - 37 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 78 organisms and represented 21 different taxa. Area 2 averaged 48 organisms and represented 21 different taxa. Area 3 averaged 19 organisms and represented 13 different taxa.

Fish Collected: (See accompanying table)

Comments - The lower 26 miles of the Pigeon River in Tennessee have been polluted by Champion International Corporation since about 1908. Effluent discharge from the pulp and paper manufacturing facility in Canton, North Carolina causes severe degradation of water quality that impacts the fish and benthic communities downstream (Schacher 1987). The river has lost almost all of its native fishes due to this pollution and very little is known of the former fish fauna of the Pigeon (Etnier 1973). Stubbs (1965) found that rough fish comprised 91% by numbers and 99.6% by weight of all fish collected in four electrofishing samples. He concluded that not only were there few game fish present in the Pigeon River, but there were very few fish present

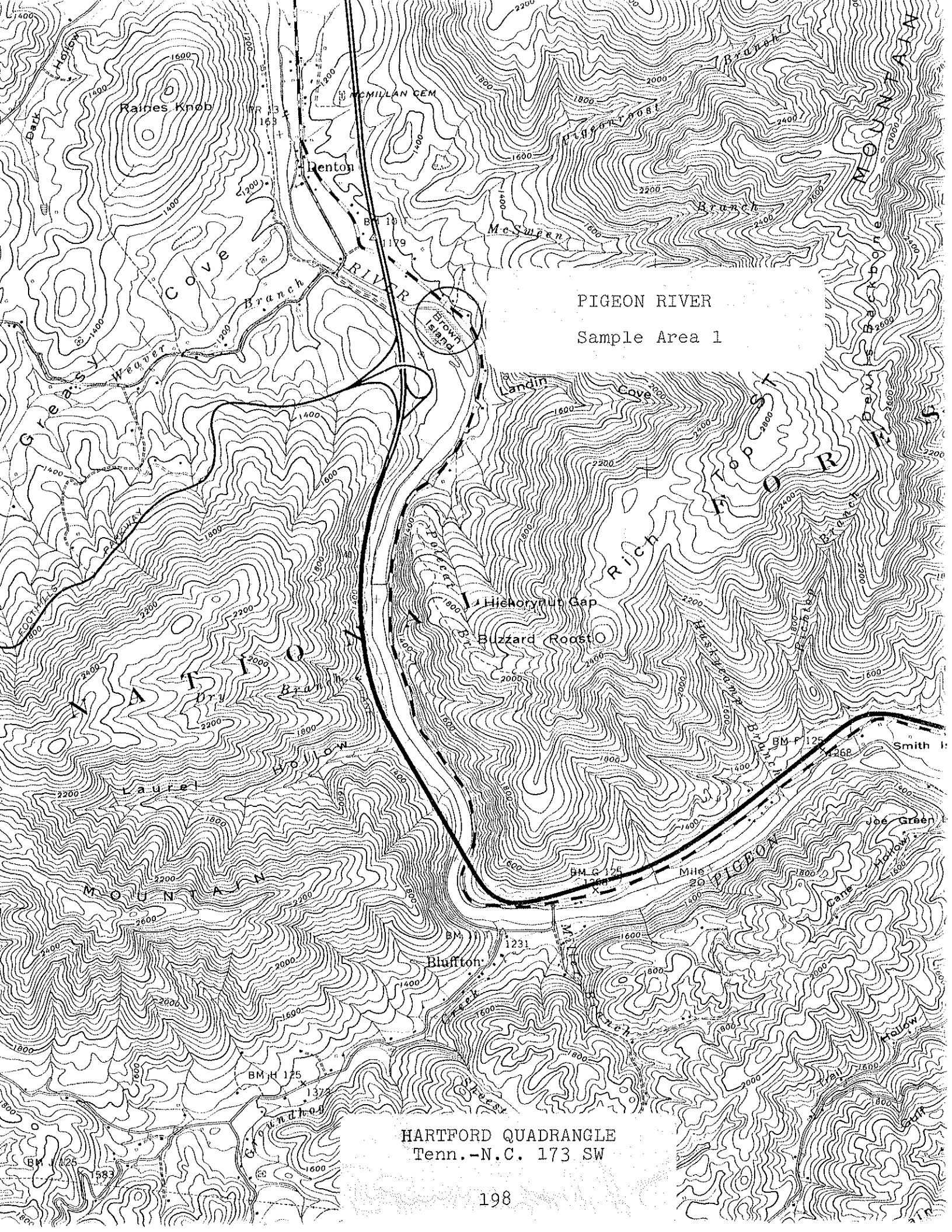
at all. Additional sampling near Hartford in 1976, using fish toxicants, revealed only rough fish present (TWRA unpublished data).

In an effort to update and expand our fishery information, we cooperated in a multi-agency sampling at three sites on the Pigeon River using explosives (primacord). A combined total of 52 fish of five species were collected. Game fish included 1 rock bass (*Ambloplites rupestris*) and 9 redbreast sunfish (*Lepomis auritus*). Thirty-seven whitetail shiners (*Notropis galacturus*), 4 central stonerollers (*Campostoma anomalum*), and 1 northern hog sucker (*Hypentelium nigricans*) comprised the rest of the sample. Our sampling again indicates both low numbers of game fish and low species diversity. Fish collected by TWRA in February, 1988, and tested by the Environmental Protection Agency, also revealed the presence of dioxin contamination. Dioxin, which has been associated with waste water from paper mills, further adds to the pollution problems of the Pigeon and may also have severe implications for Douglas Reservoir downstream. If the Pigeon River were allowed to recover, by elimination or at least a significant reduction of pollution, it has the capacity to become a very productive and highly utilized stream.

Benthic macroinvertebrates from our samples were generally low in numbers except for the more pollution tolerant forms such as chironomids, simuliids, and oligochaets. Others included representatives of Baetidae, Ephemerellidae, and Heptageniidae mayflies, Hydropsychidae, Hydroptilidae, Philopotamidae, Polycentropodidae, and Psychomyiidae caddisflies, and Perlidae and Perlodidae stoneflies. These may be wash-in organisms from high quality tributaries and caution should be observed in implying water quality based on our limited benthic sampling. The only mollusks in our collection were Asian clams (*Corbicula fluminea*) and one specimen of Ancyliidae gastropod (*Ferrissia* sp.).

Fish collected in three quantitative samples of the Pigeon River.

<u>Actual</u>	<u>Area 1</u>			<u>Area 2</u>			<u>Area 3</u>		
	<u>No.</u>	<u>% by</u>	<u>Wt.</u>	<u>No.</u>	<u>% by</u>	<u>Wt.</u>	<u>No.</u>	<u>% by</u>	<u>Wt.</u>
<u>Species</u>			<u>Wt.</u>			<u>Wt.</u>			<u>Wt.</u>
Rock bass	7	21.9	0.3	42.9			1	100	0.1
Redbreast sunfish					2	10.5	0.05	2.2	
Nongame Fish					1	5.3	2.0	88.9	
Forage Fish	25	78.1	0.4	57.1	16	84.2	0.2	8.9	
Total	32		0.7		19		2.25		0.1
<u>Calculated</u>									
<u>Standing Crop/ac</u>									
<u>Species</u>									
Rock bass									
Redbreast sunfish	16		0.7		10		0.24		0.3
Nongame Fish					5		9.6		
Forage Fish	58		0.9		77		0.96		
Total	74		1.6		92		10.8		0.3



HARTFORD QUADRANGLE
Tenn.-N.C. 173 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead French Broad River Lat-Long 355028N - 831039W
Stream Pigeon River Length of Sample 180'
Area or Station Site # 1 Reach 06010106-9,0
County Cocke Date/Time 30 April 1987/1715
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 106' Average Depth 1.4' Maximum Depth 5' est.
2. Estimated Percent of Stream in Pools is 30 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 10 %
Clay - % Gravel 10 % Rubble 25 % Boulders 25 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
Bedrock - % Other Rubble 50% Boulders 25%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of Stream, Average in 30 %, Poor in 30 %
7. Shade or Canopy Good over 30 % of Stream; Interferes little
(degree) with any (type) of fishing.
- * 8. Flow (c.f.s.) 89.0 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.4 ppm Temp. 63.1 °F % Saturation 96
10. Present Weather Partly cloudy and warm, air temp. 82° F
11. Past Weather (last 24 hours) Partly cloudy and mild.
12. D.O. 9.4 pH 7.9 Temp. 63.1 Conductivity 169
13. Comments: Sample location lefthand side (upstream) of Brown
Island, Pigeon River mi. 17.0. Water very colored here.
- * No generation at Walters Power Plant and around an island.

Site #1 - Brown Island,
Pigeon River,
mi. 17.0

180' sample length

* Label Parameter Listed

Name of Collector(s): T. Cheek, W. Schacher, D. Wilson, R. Bivens, C. Ellison,

G. Hickman, A. Brown, C. O'Bara, J. Wojtowicz, et al.

Pigeon River: Site # 1, Edge Surber sample

30 April 1987

Field # 029

Cocke Co., TN; Lefthand side of Brown Island, Pigeon River
mi. 17.0. Coordinates: 355028N - 831039W. Hartford, Tenn.-
N.C., # 173 SW Quad. Reach # 06010106-9,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	1
DIPTERA:	
Unidentified pupae	3
Chironomidae	16
Empididae	2
Simuliidae	3
Tipulidae/ <u>Antocha</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Pseudocloeon</u>	1
Ephemerellidae/ <u>Ephemerella</u>	3
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	1
<u>Nigronia serricornis</u>	1
OLIGOCHAETA:	2
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	6
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	2
Hydroptilidae/ <u>Hydroptila</u>	1
Psychomyiidae/ <u>Psychomyia flavida</u>	1
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	45

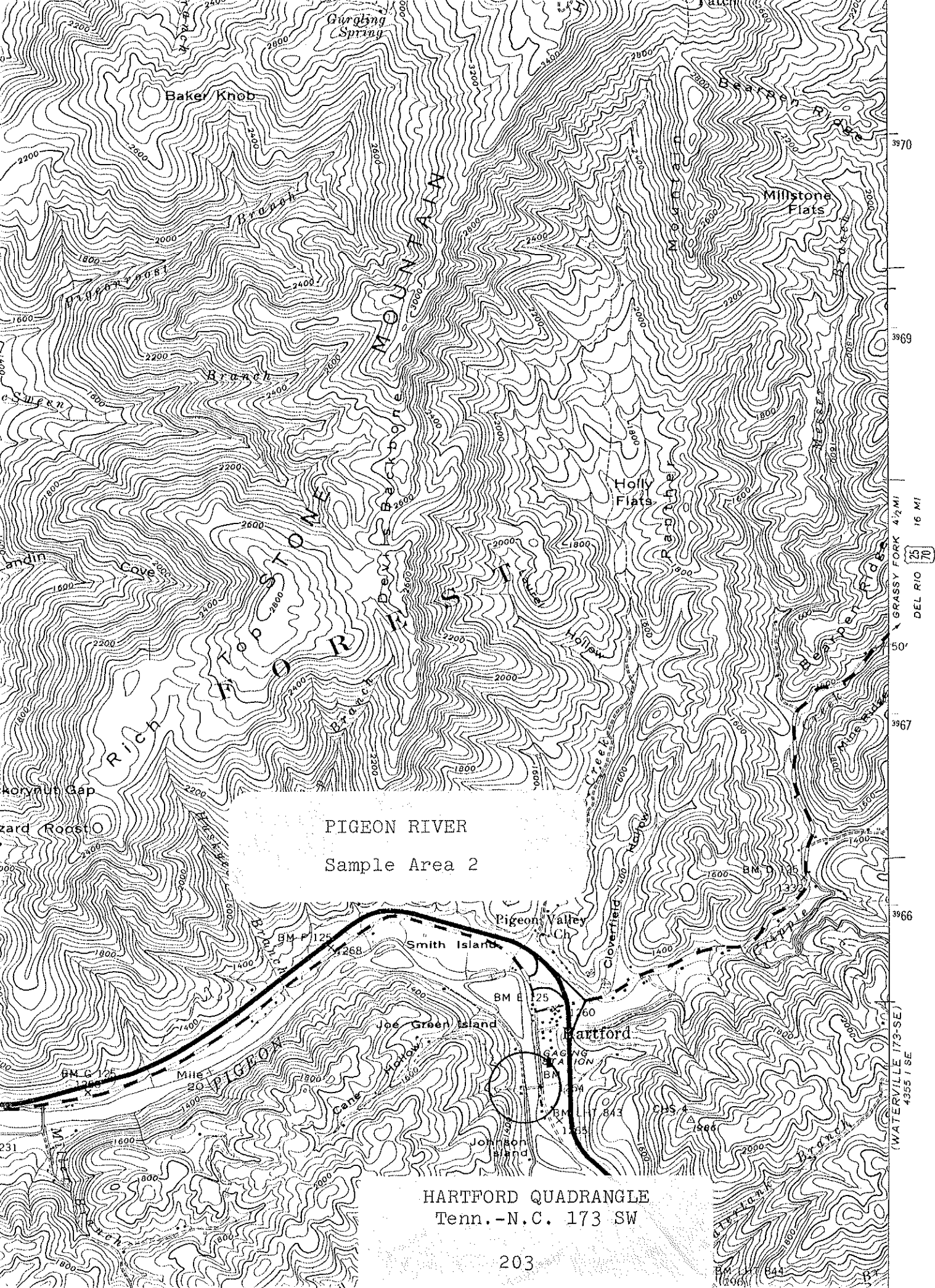
Pigeon River: Site # 1, Midstream Surber sample

30 April 1987

Field # 029

Cocke Co., TN; Lefthand side of Brown Island, Pigeon River
mi. 17.0. Coordinates: 355028N - 831039W. Hartford, Tenn.-
N.C., # 173 SW Quad. Reach # 06010106-9,0.

TAXA	NUMBER
DIPTERA:	
Unidentified pupae	6
Chironomidae	42
Empididae larvae	2
pupae	2
Tipulidae/ <u>Antocha</u> larvae	20
pupae	5
EPHEMEROPTERA:	
Ephemerellidae/ <u>Ephemerella</u>	5
Heptageniidae/ <u>Stenacron</u>	2
ISOPODA:	
Asellidae/ <u>Asellus</u>	1
ODONATA:	
Coenagrionidae/ <u>Argia</u>	2
OLIGOCHAETA:	5
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	2
PLECOPTERA:	
Perlidae (early instar)	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Symphitopsyche morosa</u>	1
Hydroptilidae/Unidentified pupae	5
<u>Hydroptila</u>	9
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PIGEON RIVER
Sample Area 2

HARTFORD QUADRANGLE
Tenn.-N.C. 173 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead French Broad River Lat-Long 354846N - 830843W
Stream Pigeon River Length of Sample 170'
Area or Station Site # 2 Reach 06010106-9,0
County Cocke Date/Time 30 April 1987/1500
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 53.5' Average Depth 0.9' Maximum Depth 4'
2. Estimated Percent of Stream in Pools is 20 %.
3. Estimated Percent Pool Bottom is Mud - % Silt 10 % Sand 20 %
Clay - % Gravel 10 % Rubble 30 % Boulders 30 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 10 % Sand 20 %
Bedrock - % Other Rubble 40% Boulders 30%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of Stream, Average in 30 %, Poor in 40 %
7. Shade or Canopy Good over 30 % of Stream; Interferes little
(degree) with any (type) of fishing.
- * 8. Flow (c.f.s.) 57.8 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.3 ppm Temp. 62.8 °F % Saturation 95
10. Present Weather Partly cloudy and warm, air temp. 84 °F
11. Past Weather (last 24 hours) Partly cloudy and mild.
12. D.O. 9.3 pH 7.8 Temp. 62.8 Conductivity 156
13. Comments: Sample location at Hartford Bridge, righthand (upstream)
side of island just below the bridge. Water very colored here.
* No generation at Walters Power Plant and around an island.

Site #2 - Hartford
Bridge

[illegible]

Field Notes: _____

WP-C525

Pigeon River: Site # 2, Edge Surber sample

30 April 1987

Field # 030

Cocke Co., TN; Just below the Hartford bridge on right side.
Coordinates: 354846N - 830843W. Hartford, Tenn.-N.C.,
173 SW Quad. Reach # 06010106-9,0.

TAXA	NUMBER
DIPTERA:	
Unidentified pupae	2
Chironomidae	4
Simuliidae	5
EPHEMEROPTERA:	
Baetidae/ <u>Pseudocloeon</u>	3
Ephemerellidae/ <u>Ephemerella</u>	2
<u>Drunella</u>	1
Heptageniidae/ <u>Epeorus</u> (Iron)	1
<u>Stenonema</u>	1
ISOPODA:	
Asellidae/ <u>Asellus</u>	5
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	2
ODONATA:	
Coenagrionidae/ <u>Argia</u>	1
OLIGOCHAETA:	13
PLECOPTERA:	
Perlidae (early instar)	1
Perlodidae/ <u>Isoperla</u>	1
TRICHOPTERA:	
Hydropsychidae/Unidentified pupae	2
<u>Cheumatopsyche</u>	2
<u>Symphitopsyche sparna</u>	3
Lepidostomatidae/ <u>Lepidostoma</u> adult	1
Polycentropodidae/ <u>Polycentropus</u> (early instars)	2

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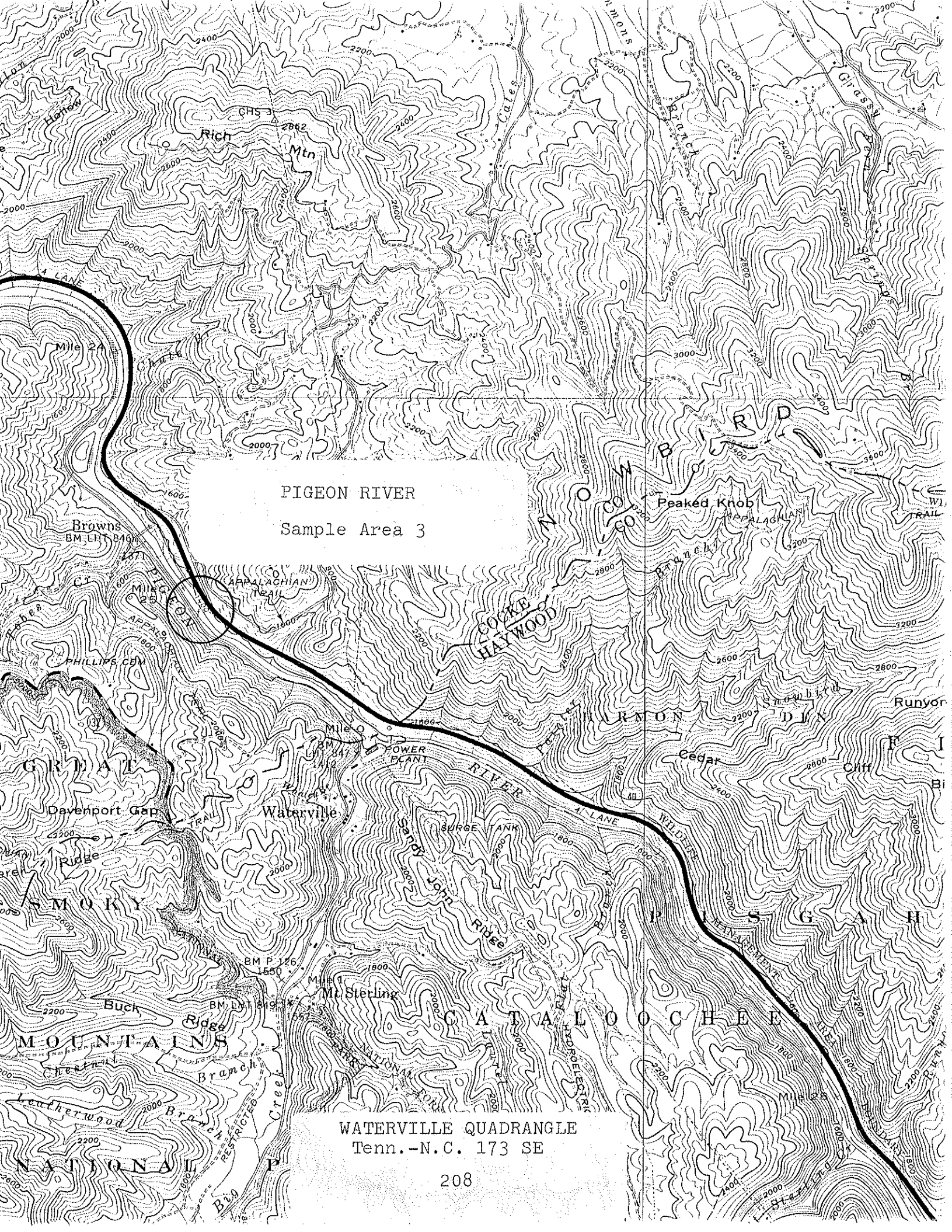
Pigeon River: Site # 2, Midstream Surber sample

30 April 1987

Field # 030

Cocke Co., TN; Just below the Hartford bridge on right side.
Coordinates: 354846N - 830843W. Hartford, Tenn.-N.C.,
173 SW Quad. Reach # 06010106-9,0.

TAXA	NUMBER
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DIPTERA:	
Unidentified pupae	2
Chironomidae	15
Empididae larvae	2
pupa	1
Simuliidae	11
Tipulidae/ <u>Antocha</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Pseudocloeon</u>	2
Ephemerellidae/ <u>Ephemerella</u>	3
Heptageniidae/ <u>Epeorus</u> (<u>Iron</u>)	1
OLIGOCHAETA:	1
PLECOPTERA:	
Perlidae/ <u>Acroneuria</u> <u>abnormis</u>	1
TRICHOPTERA:	
Hydropsychidae/Unidentified pupae	2
<u>Symphitopsyche</u> <u>sparna</u>	1
Hydroptilidae/ <u>Hydroptila</u>	1
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PIGEON RIVER
Sample Area 3

WATERVILLE QUADRANGLE
Tenn.-N.C. 173 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead French Broad River Lat-Long 354652N - 830635W
Stream Pigeon River Length of Sample 170'
Area or Station Site # 3 Reach 06010106-9,0
County Cocke Date/Time 30 April 1987/1320
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 93' Average Depth 1.3' Maximum Depth 7' est.
2. Estimated Percent of Stream in Pools is 30 %.
3. Estimated Percent Pool Bottom is Mud - % Silt 10 % Sand 25 %
Clay - % Gravel 15 % Rubble 15 % Boulders 15 %
Bedrock 20 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 10 % Sand 25 %
Bedrock 15 % Other Rubble 35% Boulders 15%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 50 % of Stream; Interferes little
(degree) with any (type) of fishing.
* 8. Flow (c.f.s.) 193.4 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.6 ppm Temp. 59.4 °F % Saturation 95
10. Present Weather Partly cloudy and warm, air temp. 84°F
11. Past Weather (last 24 hours) Partly cloudy and mild.
12. D.O. 9.6 pH 7.9 Temp. 59.4 Conductivity 37
13. Comments: Sample location at Pigeon River mi. 25.1.
* No generation at Walters Power Plant.

Site #3 - Pigeon River
mi. 25.1

170' sample length

* Label Parameter Listed

Name of Collector(s): T. Cheek, W. Schacher, D. Wilson, R. Bivens, C. Ellison,
R. Kirk, G. Hickman, A. Brown, C. O'Bara, J. Wojtowicz, et al.

Pigeon River: Site # 3, Edge Surber sample

30 April 1987

Field # 028

Cocke Co., TN; Downstream from Walters Powerhouse at Pigeon River mi. 25.1. Coordinates: 354652N - 830635W. Waterville, Tenn.-N.C., # 173 SE Quad. Reach # 06010106-9,0.

TAXA	NUMBER
DIPTERA:	
Unidentified pupa	1
Chironomidae	7
Empididae	1
EPHEMEROPTERA:	
Baetidae/ <u>Pseudocloeon</u>	2
Heptageniidae/ <u>Stenonema</u>	1
GASTROPODA:	
Ancylidae/ <u>Ferrissia</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalis</u> <u>cornutus</u>	1
OLIGOCHAETA:	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	3
<u>C. pettiti</u> adults	2
<u>Symphitopsyche sparna</u> pupae	2
<u>S. sparna</u> larvae	6
Philopotamidae/ <u>Dolophilodes</u> <u>distinctus</u>	3
Polycentropodidae/ <u>Polycentropus</u>	1
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Pigeon River: Site # 3, Midstream Surber sample

30 April 1987

Field # 028

Cocke Co., TN; Downstream from Walters Powerhouse at Pigeon River mi. 25.1. Coordinates: 354652N - 830635W. Waterville, Tenn.-N.C., # 173 SE Quad. Reach # 06010106-9,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	2
EPHEMEROPTERA:	
Heptageniidae/ <u>Heptagenia</u>	1
OLIGOCHAETA:	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u> pupa	1
	<hr/>
	5

Holston River

Three qualitative fishery surveys were conducted in July and August 1987:

Location and Length - Sample area 1 was at Nance Ferry, Holston River mi. 33.3, and was sampled on 21 and 22 July 1987. The area was 500 ft. in length and averaged 421.6 ft in width. Sample area 2 was upstream from the Surgoinsville Bridge at Holston River mi. 119.1, and was sampled on 24 July 1987. The sample area was 500 ft. in length and averaged 465 ft. in width. Sample area 3 was near Church Hill, at Holston River mi. 135.9, and was sampled on 5 August 1987. The sample area was 500 ft. in length and averaged 417.5 ft. in width. Sample area 1 was in Grainger and Jefferson Counties. Both sites 2 and 3 were in Hawkins County. Area 1, Lutrell Quadrangle. Area 2, Stony Point Quadrangle. Area 3, Church Hill Quadrangle.

Gear Type - Sample area 1 and 3 were sampled using both boat and backpack electrofishing equipment. A shocker boat was used where deeper water permitted and shallow riffle areas were sampled with either a backpack shocker alone, or a backpack shocker in combination with a 30 ft. seine. Area 2 was sampled using a shocker boat only.

Water Quality - Data were taken from midstream with a 4041 Hydrolab, Model 58 YSI meter, and Hach Pocket pH meter. Area 1, on 21 and 22 July 1987: DO - 6.1 ppm, pH - 7.3, Temperature - 61.5 F, Conductivity - 253 micromhos/cm. Area 2, on 23 July 1987: DO - 8.0 ppm, pH - 8.8, Temperature - 77.2 F. Area 3, on 4 August 1987: DO - 6.1 ppm, pH - 7.6, Temperature - 68.7 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 148 organisms, 1.0 ml. volumetric displacement, and represented 10 different taxa. Area 2 averaged 35 organisms, 0.4 ml. volumetric displacement, and represented 10 different taxa. Area 3 averaged 99 organisms, 0.8 ml. volumetric displacement, and represented 20 different taxa.

Fish Collected: (See accompanying table)

Comments - Three areas of the Holston River were sampled primarily to develop a fish species diversity list, collect stream information for TADS, and update fishery data for the agency. One area downstream of Cherokee Reservoir and two areas

upstream of John Sevier Detention Reservoir were sampled.

Game fish from the sample area downstream of Cherokee Reservoir included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), white bass (*Morone chrysops*), and yellow bass (*M. mississippiensis*). It is interesting to note the occurrence of the yellow bass. This fish has recently become common in mainstream reservoirs in east Tennessee and is on an apparent upstream migration (Etnier and Starnes 1980). It was absent from Holston River collections made by TVA in the mid-1970s and has probably moved into the river only within the last decade. Yellow bass made up about 15% of the total number and about 11% of the total weight of all fish in our recent collection. A total of 19 fish species was collected from the lower site.

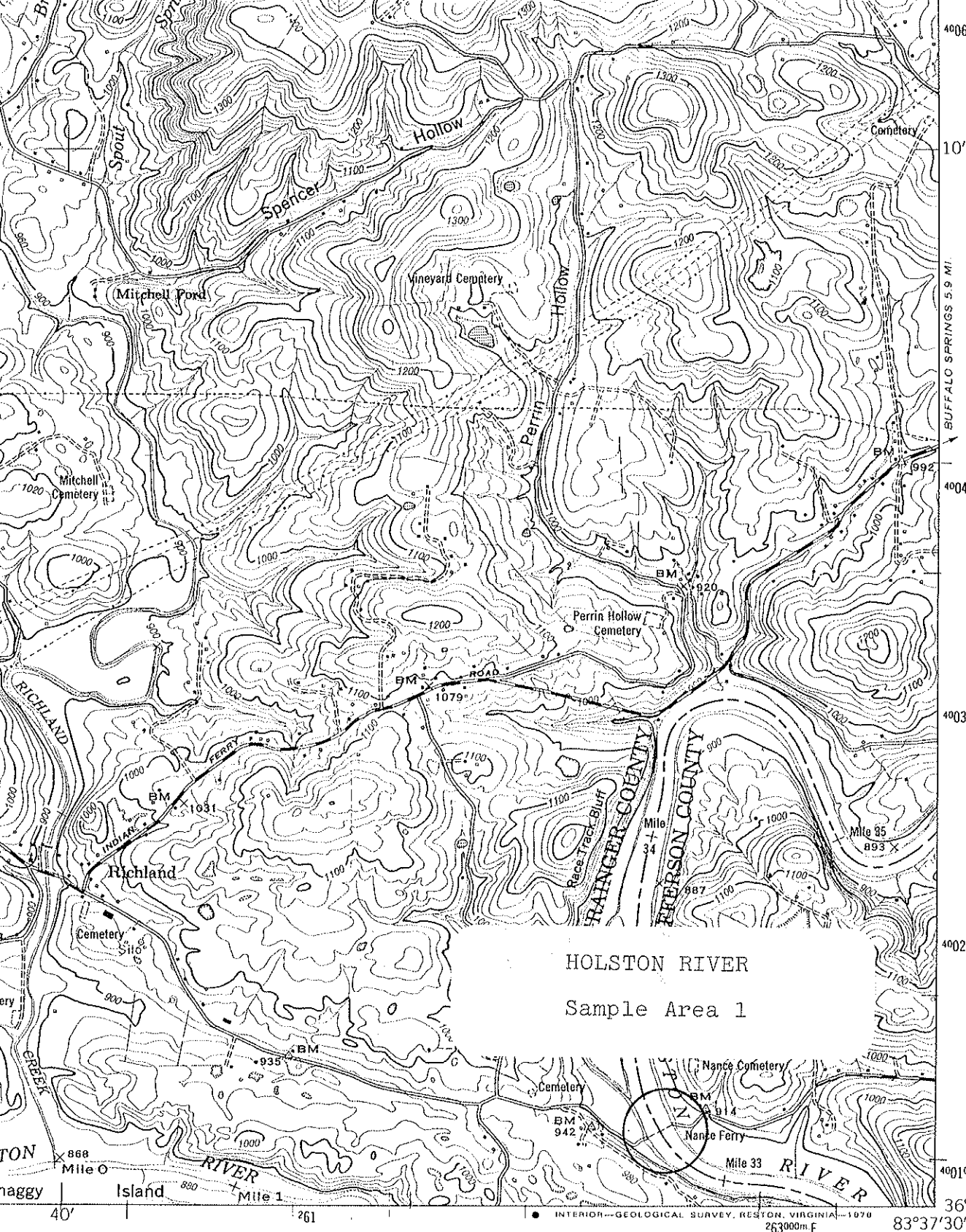
Game fish from our sample areas upstream of John Sevier were primarily smallmouth bass (*M. dolomieu*), rock bass (*Ambloplites rupestris*), and redbreast sunfish. Bluegill and redear sunfish (*L. microlophus*) were also present.

This segment of the river has been polluted by municipalities and industries located upstream and major fish kills resulting from toxic discharges have occurred and continue to occur. However, conditions have improved from the severity of the 1970s and early 1980s and fish populations have made substantial recovery. A TVA report (Saylor and Brown 1987) summarized that this river segment supports an excellent panfish fishery but less-than-quality smallmouth bass fishery that could support and would probably benefit from increased harvest. We collected a combined total of 33 fish species from our two sample sites. TVA collected a combined total of 42 species from eight sample areas.

Benthic macroinvertebrates from our samples downstream of Cherokee Reservoir included Hydropsychidae and Hydroptilidae caddisflies, chironomid and simuliid larvae and pupae, and isopods (*Lirceus*). Asian clams (*Corbicula fluminea*) and the river snail (*Pleurocera canaliculatum*) were also present. Upstream of John Sevier the samples included primarily Baetidae, Caenidae, Heptageniidae, and Tricorythidae mayflies, Hydropsychidae caddisflies, and chironomids, simuliids, and crane fly larvae (*Antocha*). Asian clams and river snails (*Anculosa subglobosa*, *P. canaliculatum*, and *P. unciata*) were also present.

Fish collected in three qualitative samples of the Holston River.

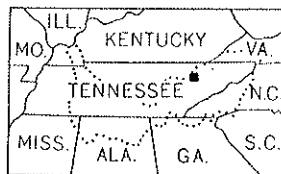
Species	<u>Area 1</u>			<u>Area 2</u>			<u>Area 3</u>		
	No.	% by No.	Wt.	No.	% by No.	Wt.	No.	% by No.	Wt.
Largemouth bass	3	0.8	0.45						
Smallmouth bass				31	5.0	5.79	35	7.1	3.97
Yellow bass	56	14.7	5.76						
White bass	9	2.4	2.91						
Rock bass				32	5.1	7.0	53	10.8	12.4
Bluegill	13	3.4	2.37	1	0.2	0.15			
Redbreast sunfish	7	1.8	0.08	37	5.9	3.05	24	4.9	3.85
Redear sunfish				2	0.3	0.3			
Nongame Fish	39	10.2	41.98	77	12.3	94.15	33	6.7	33.45
Forage Fish	255	66.8	1.13	445	71.2	18.52	348	70.6	2.18
Total	382		54.68	625		128.96	493		55.85



HOLSTON RIVER

Sample Area 1

MILE



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty ————— Poor motor road = = = = =
 Medium-duty ———— Wagon and jeep track - - - - -
 Light-duty ——— Foot trail - - - - -

U. S. Route

State Route

In developed areas, only through roads are classified

LUTTRELL, TENN.

N3607.5-W8337.5/7.5

1952

(NEW MARKET 155-SE)
 4256 11 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
 PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 360744N - 833818W
 Stream Holston River Length of Sample 500'
 Area or Station Site # 1 Reach 06010104-3,4
 County Grainger - Jefferson Date/Time 16 July 1987/1000
 Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 421.6' Average Depth 1.6' Maximum Depth 5.8'
2. Estimated Percent of Stream in Pools is 50 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 10 % Sand 70 %
 Clay 5 % Gravel 5 % Rubble 5 % Boulders - %
 Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 10 % Sand 30 %
 Bedrock - % Other Rubble 50% Gravel 10%
5. Abundance of Littoral Aquatic Plants is Numerous X
 Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 60 %
 of stream, Average in 30 %, Poor in 10 %.
7. Shade or Canopy Good over 10 % of Stream.

* 8. Flow (c.f.s.) 647.6 : Flow compared to Normal: Low _____ Normal x High _____

** 9. D.O. 6.1 ppm Temp. 61.5 °F % Saturation 62.0

10. Present Weather Partly cloudy and warm; air temp. 83°F

11. Past Weather (last 24 hours) Partly cloudy and cool overnight.

*** 12. D.O. 6.1 pH 7.3 Temp. 61.5 Conductivity 253

13. Comments: Sample location just above Nance Ferry at Holston River
mi. 33.3. * No generation at Cherokee Dam. ** DO taken with
YSI on 22 July 1987. *** Conductivity and pH taken with Hydrolab
on 21 July 1987.

FISH FIELD DATA FORM

Site #1 - Nance Ferry,
Holston River
mi. 33.3

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 360744N - 833818W
 Body of Water Holston River Date 21 & 22 July 1987
 County or River Mile Grainger-Jefferson Reach 06010104-3,4
 Type of Sampling Electrofishing Pool Elevation 878'
 Gear Type Boat shocking & backpack Time 1015-1215 on 21 July 1987
shocking into 30' seine 0930-1115 on 22 July 1987

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus salmoides</i>		220	1	5	t			
"	"	"	1	7	0.1			
"	"	"	1	9	0.35			
<i>Lepomis auritus</i>		201	6	2	t			
"	"	"	1	4	0.08			
<i>Lepomis macrochirus</i>		206	1	2	t			
"	"	"	1	5	0.1			
"	"	"	8	6	1.32			
"	"	"	3	7	0.95			
<i>Morone chrysops</i>		222	1	8	0.23			
"	"	"	4	9	1.08			
"	"	"	4	10	1.6			
<i>Morone mississippiensis</i>		224	37	6	3.6			
"	"	"	17	7	1.81			
"	"	"	2	8	0.35			
<i>Ictalurus punctatus</i>		176	2	14	1.88			
"	"	"	1	15	0.9			
"	"	"	1	16	1.3			
"	"	"	2	18	4.0			
<i>Hypentelium nigricans</i>		166	9	1-16	3.85			
<i>Ictiobus niger</i>		179	2	17-19	2.4			
<i>Aplodinotus grunniens</i>		20	1	12	0.8			
<i>Dorosoma cepedianum</i>		48	16	7-10	2.95			
<i>Dorosoma petenense</i>		49	1	6	0.06			
Continued		on	next	page				

* Label Parameter Listed

Field Notes: 500' sample length.

Name of Collector(s): Rick D. Bivens, David Lane, Chester J. Ellison,
Stan Lambert, and Steve Strader

WR-C525

Holston River: Site # 1, Edge Surber sample

16 July 1987

Field # 048

Grainger/Jefferson Co., TN; Nance Ferry at Holston River mi.
33.3. Coordinates: 360744N - 833818W. Luttrell, Tenn.,
155 NW Quad. Reach # 06010104-3,4.

TAXA	NUMBER
DIPTERA:	
Unidentified pupae	2
Chironomidae	49
Simuliidae larvae	47
pupae	14
adult	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera canaliculatum</u>	3
ISPODA:	
Asellidae/ <u>Lirceus</u>	82
OLIGOCHAETA:	11
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	4
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	6
Hydroptilidae/ <u>Hydroptila</u>	1
Unidentified pupae	5
	<hr/>
	234

Volumetric Displacement was 1.15 ml.

Holston River: Site # 1, Midstream Surber sample

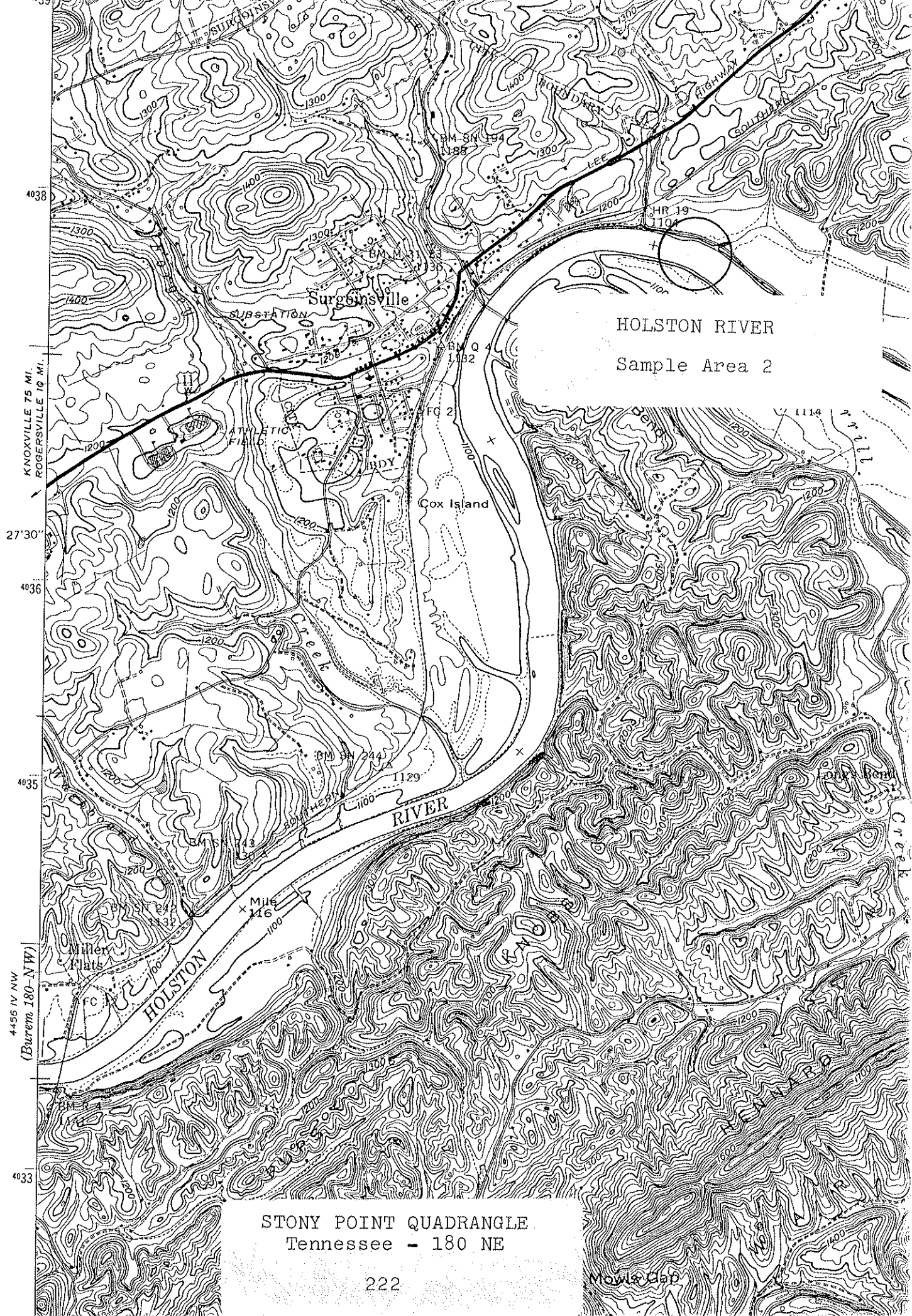
16 July 1987

Field # 048

Grainger/Jefferson Co., TN; Nance Ferry at Holston River mi.
33.3. Coordinates: 360744N - 833818W. Luttrell, Tenn.,
155 NW Quad. Reach # 06010104-3,4.

TAXA	NUMBER
<hr/>	
DIPTERA:	
Unidentified pupa	1
Chironomidae	20
Simuliidae larvae	15
pupae	4
ISOPODA:	
Asellidae/ <u>Lirceus</u>	18
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	1
Unidentified pupa	1
	<hr/>
	62

Volumetric Displacement was 0.75 ml.



STONY POINT QUADRANGLE
Tennessee - 180 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 362817N - 825022W
Stream Holston River Length of Sample 500'
Area or Station Site # 2 Reach 06010104-14,0
County Hawkins Date/Time 23 July 1987/1500
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 465' Average Depth 2.9' Maximum Depth 7.5'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 10 % Silt 20 % Sand 20 %
Clay 5 % Gravel 5 % Rubble 15 % Boulders 10 %
Bedrock 15 % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 20 % Sand 20 %
Bedrock 35 % Other Rubble 20 %
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 40 %, Poor in 30 %.
7. Shade or Canopy Good over 10 % of Stream.
- * 8. Flow (c.f.s.) 1618.2 : Flow compared to Normal: Low _____ Normal X High _____
- ** 9. D.O. 8.0 ppm Temp. 77.2 °F % Saturation 97.5
10. Present Weather Partly cloudy, hot and humid; air temp. 92°F
11. Past Weather (last 24 hours) Partly cloudy, hot and humid.
- *** 12. D.O. 8.0 pH 8.8 Temp. 77.2 Conductivity -
13. Comments: Sample location above Surgoinsville Bridge at Holston
River mi. 119.1. * Dependent on discharge from Fort Patrick
Henry Dam. ** DO taken with YSI on 24 July 1987. *** pH taken
with Hach pocket pH meter.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 362817N - 825022W
 Body of Water Holston River Date 24 July 1987
 County or River Mile Hawkins Reach 06010104-14,0
 Type of Sampling Electrofishing Pool Elevation 1090'
 Gear Type Boat shocking Time 1130-1230 and 1500-1600
500' sample length

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	10	0.8			
"	"	"	4	8	1.6			
"	"	"	12	7	2.9			
"	"	"	9	6	1.4			
"	"	"	3	5	0.25			
"	"	"	2	4	0.05			
"	"	"	1	3	t			
<i>Lepomis auritus</i>		201	3	7	0.65			
"	"	"	6	6	0.9			
"	"	"	5	5	0.4			
"	"	"	19	4	1.0			
"	"	"	4	3	0.1			
<i>Lepomis macrochirus</i>		206	1	6	0.15			
<i>Lepomis microlophus</i>		209	1	8	0.3			
"	"	"	1	4	t			
<i>Micropterus dolomieu</i>		218	4	11	2.6			
"	"	"	3	10	1.5			
"	"	"	1	9	0.3			
"	"	"	1	8	0.2			
"	"	"	1	7	0.2			
"	"	"	2	6	0.18			
"	"	"	8	5	0.71			
"	"	"	1	4	0.04			
"	"	"	1	3	t			
"	"	"	9	2	0.06			

* Label Parameter Listed

Continued on next page

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, Daniel Pollard,
and Earl Seay

WR-C525

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River
Body of Water Holston River
County or River Mile Hawkins
Type of Sampling Electrofishing
Gear Type Boat shocking
500' sample length

Lat-Long 362817N - 825022W
Date 24 July 1987
Reach 06010104-14,0
Pool Elevation 1090'
Time 1130-1230 and 1500-1600

SPECIES		NUMBER	LENGTH	WT.	*	*	*
Name	CODE						
<i>Ictalurus natalis</i>	174	28	1-11	10.45			
<i>Ictalurus punctatus</i>	176	1	7	0.1			
" "	"	1	17	1.5			
" "	"	1	19	1.95			
" "	"	2	22	8.4			
<i>Carpiodes carpio</i>	28	1	15	1.7			
<i>Hypentelium nigricans</i>	166	28	7-15	19.9			
<i>Campostoma anomalum</i>	25	10	2-6	0.45			
<i>Carassius auratus</i>	26	6	10-13	6.45			
<i>Cyprinus carpio</i>	47	9	16-24	43.7			
<i>Hybopsis dissimilis</i>	157	5	4	0.1			
<i>Nocomis micropogon</i>	234	224	1-8	15.3			
<i>Notropis chrysocephalus</i>	249	56	2-6	1.55			
<i>Notropis coccogenis</i>	248	29	1-5	0.4			
<i>Notropis galacturus</i>	253	18	1-3	0.08			
<i>Notropis spilopterus</i>	269	26	1-4	0.19			
<i>Notropis leuciodus</i>	255	32	1-3	t			
<i>Notropis photogenis</i>	259	1	5	t			
<i>Notropis rubellus</i>	260	3	2	t			
<i>Notropis telescopus</i>	272	3	3	t			
<i>Notropis volucellus</i>	277	9	1-2	t			
<i>Etheostoma blennioides</i>	81	21	3-5	0.45			
<i>Etheostoma rufilineatum</i>	108	2	2	t			
<i>Etheostoma simoterum</i>	111	1	2	t			
<i>Etheostoma zonale</i>	135	5	3	t			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, Daniel Pollard,
and Earl Seay

WR-C525

Holston River: Site # 2, Edge Surber sample # 1

23 July 1987

Field # 052

Hawkins Co., TN; Surgoinville at Holston River mi. 119.1.
Coordinates: 362817N - 825022W. Stony Point, Tenn., # 180
NE Quad. Reach # 06010104-14,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Heptagenia</u>	6
<u>Stenacron</u>	4
<u>Stenonema</u>	8
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	8
<u>Pleurocera unciala</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	3
<u>Hydropsyche</u>	2
Hydroptilidae/ <u>Hydroptila</u>	1
	38

Volumetric Displacement was 0.5 ml.

Holston River: Site # 2, Edge Surber sample # 2

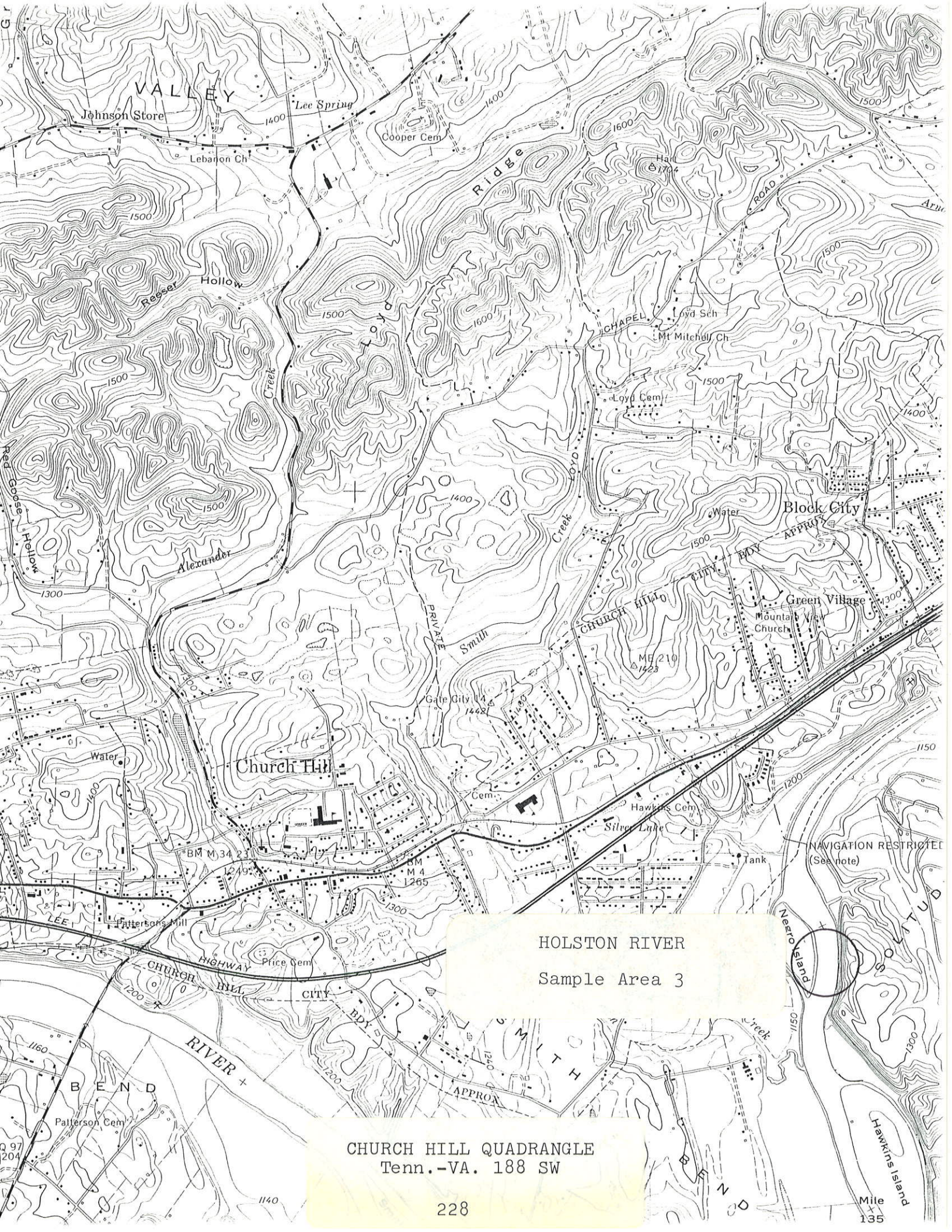
23 July 1987

Field # 052

Hawkins Co., TN; Surgoinville at Holston River mi. 119.1.
Coordinates: 362817N - 825022W. Stony Point, Tenn., # 180
NE Quad. Reach # 06010104-14,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adult	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Caenidae/ <u>Caenis</u>	1
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenacron</u>	6
<u>Stenonema</u>	12
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera</u> <u>canaliculatum</u>	2
ISOPODA:	
Asellidae/ <u>Lirceus</u>	1
OLIGOCHAETA:	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	3
	<hr/>
	31

Volumetric Displacement was 0.25 ml.



HOLSTON RIVER

Sample Area 3

CHURCH HILL QUADRANGLE
Tenn.-VA. 188 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 363108N - 824047W
Stream Holston River Length of Sample 500'
Area or Station Site # 3 Reach 06010104-14.2
County Hawkins Date/Time 4 August 1987/1900
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 417.5' Average Depth 2.3' Maximum Depth 6' est.
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 20 % Silt 20 % Sand 20 %
Clay 5 % Gravel 15 % Rubble 15 % Boulders - %
Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 20 %
Bedrock - % Other Rubble 30% Gravel 20%
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 50 %, Poor in 20 %.
7. Shade or Canopy Good over 10 % of Stream.
- * 8. Flow (c.f.s.) 2605.2 : Flow compared to Normal: Low _____ Normal X High _____
- ** 9. D.O. 6.1 ppm Temp. 68.7° F % Saturation 67.5
10. Present Weather Clear, hot, and humid.
11. Past Weather (last 24 hours) Clear, hot, and humid.
- *** 12. D.O. 6.1 pH 7.6 Temp. 68.7 Conductivity -
13. Comments: Sample location at Negro Island, Holston River mi. 135.9.
* During generation from Fort Patrick Henry Dam. ** DO taken
with YSI on 5 August 1987. *** pH taken with pocket pH meters
on 5 August 1987 and is average of two readings.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 363108N - 824047W
 Body of Water Holston River Date 5 August 1987
 County or River Mile Hawkins Reach 06010104-14,2
 Type of Sampling Electrofishing Pool Elevation 1138'
 Gear Type Boat shocking and backpack shocking on riffle areas. Time 1115-1215 and 1430-1530

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	2	9	1.15			
"	"	"	10	8	4.0			
"	"	"	12	7	3.3			
"	"	"	15	6	3.15			
"	"	"	3	5	0.3			
"	"	"	9	4	0.5			
"	"	"	1	2	t			
"	"	"	1	1	t			
<i>Lepomis auritus</i>		201	1	8	0.4			
"	"	"	3	7	0.9			
"	"	"	6	6	1.3			
"	"	"	7	5	0.9			
"	"	"	5	4	0.25			
"	"	"	2	3	0.1			
<i>Micropterus dolomieu</i>		218	1	12	0.8			
"	"	"	3	10	1.6			
"	"	"	2	8	0.59			
"	"	"	1	7	0.18			
"	"	"	4	6	0.45			
"	"	"	10	3	0.2			
"	"	"	14	2	0.15			
<i>Ictalurus natalis</i>		174	4	4-11	2.1			
<i>Ictalurus punctatus</i>		176	2	22	6.15			
"	"	"	1	19	2.4			
<i>Carpiodes carpio</i>		28	1	17	2.2			

* Label Parameter Listed Continued on next page

Field Notes: 500' sample length.

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Carl Williams.

WR-C525

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 363108N - 824047W
 Body of Water Holston River Date 5 August 1987
 County or River Mile Hawkins Reach 06010104-14,2
 Type of Sampling Electrofishing Pool Elevation 1138'
 Gear Type Boat shocking and backpack shocking on riffle areas. Time 1115-1215 and 1430-1530

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Hypentelium nigricans</i>		166	13	3-13	4.45			
<i>Moxostoma duquesnei</i>		229	8	3-16	5.45			
<i>Dorosoma cepedianum</i>		48	1	11	0.7			
<i>Campostoma anomalum</i>		25	42	2-6	0.95			
<i>Cyprinus carpio</i>		47	3	14-21	10.0			
<i>Hybopsis dissimilis</i>		157	4	2-4	t			
<i>Nocomis micropogon</i>		234	35	2-5	0.3			
<i>Notropis coccogenis</i>		248	15	2	t			
<i>Notropis galacturus</i>		253	27	2-5	0.35			
<i>Notropis leuciodus</i>		255	64	2-3	0.1			
<i>Notropis rubellus</i>		260	9	2-3	t			
<i>Notropis sp. cf.</i>								
<i>Notropis spectrunculus</i>		266	1	2	t			
<i>Notropis spilopterus</i>		269	1	3	t			
<i>Notropis telescopus</i>		272	55	2	0.1			
<i>Phenacobius uranops</i>		330	3	4	t			
<i>Etheostoma blennioides</i>		81	7	2-5	0.12			
<i>Etheostoma camurum</i>		85	7	2	t			
<i>Etheostoma camurum X</i>								
<i>E. rufilineatum</i>		-	5	2	t			
<i>Etheostoma rufilineatum</i>		108	60	2	0.16			
<i>Etheostoma zonale</i>		135	3	2-3	t			
<i>Cottus carolinae</i>		40	10	2-3	0.1			

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Carl Williams

WR-C525

Holston River: Site # 3, Edge Surber sample

5 August 1987

Field # 056

Hawkins Co., TN; Church Hill at Holston River mi. 135.9.
Coordinates: 363108N - 824047W. Church Hill, Tenn.-VA.,
188 SW Quad. Reach # 06010104-14,2.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larva	1
DIPTERA:	
Unidentified pupae	6
Chironomidae	62
Tipulidae/ <u>Antocha</u> larvae	16
pupa	1
EPHEMEROPTERA:	
Unidentified adult	1
Baetidae/ <u>Baetis</u>	1
Caenidae/ <u>Caenis</u>	1
Ephemerellidae/ <u>Serratella</u>	2
Heptageniidae/ <u>Stenonema</u>	7
Tricorythidae/ <u>Tricorythodes</u>	5
GASTROPODA:	
Ancylidae/ <u>Ferrissia</u>	1
Physidae/ <u>Physa</u>	1
LEPIDOPTERA:	
Pyrallidae/ <u>Petrophila</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	3
<u>H. frisoni</u>	2
Unidentified pupa	1
TURBELLARIA:	2
	<hr/>
	133

Volumetric Displacement was 1.0 ml.

Holston River: Site # 3, Midstream Surber sample

5 August 1987

Field # 056

Hawkins Co., TN; Church Hill at Holston River mi. 135.9.
Coordinates: 363108N - 824047W. Church Hill, Tenn.-VA.,
188 SW Quad. Reach # 06010104-14,2.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> adult	1
DIPTERA:	
Chironomidae	13
Simuliidae	24
Tipulidae/ <u>Antocha</u> larva	1
pupa	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	4
Heptageniidae/ <u>Stenonema</u>	3
Tricorythidae/ <u>Tricorythodes</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Anculosa subglobosa</u>	6
<u>Pleurocera unciata</u>	3
OLIGOCHAETA:	1
TRICHOPTERA:	
Hydropsychidae/ <u>Hydropsyche</u>	1
Unidentified pupae	2
Hydroptilidae/ <u>Hydroptilia</u>	1
Unidentified pupa	1
Psychomyiidae/ <u>Psychomyia flava</u>	1

66

Volumetric Displacement was 0.5 ml.

Flat Creek

One qualitative fishery survey was conducted in September 1986:

Location and Length - Tributary to the Holston River. The sample area was located at the bridge on Mine Road near Mascot and was sampled on 16 September 1986. It was 200 ft. in length and averaged 39.3 ft. in width. The site was in Knox County. Mascot Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Only one shocker, operating at 110 v. AC, was used at this site.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 16 September 1986: DO - 7.9 ppm, pH - 7.6, Temperature - 68.4 F, Conductivity - 350 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 38 organisms, 0.4 ml. volumetric displacement, and represented 14 different taxa.

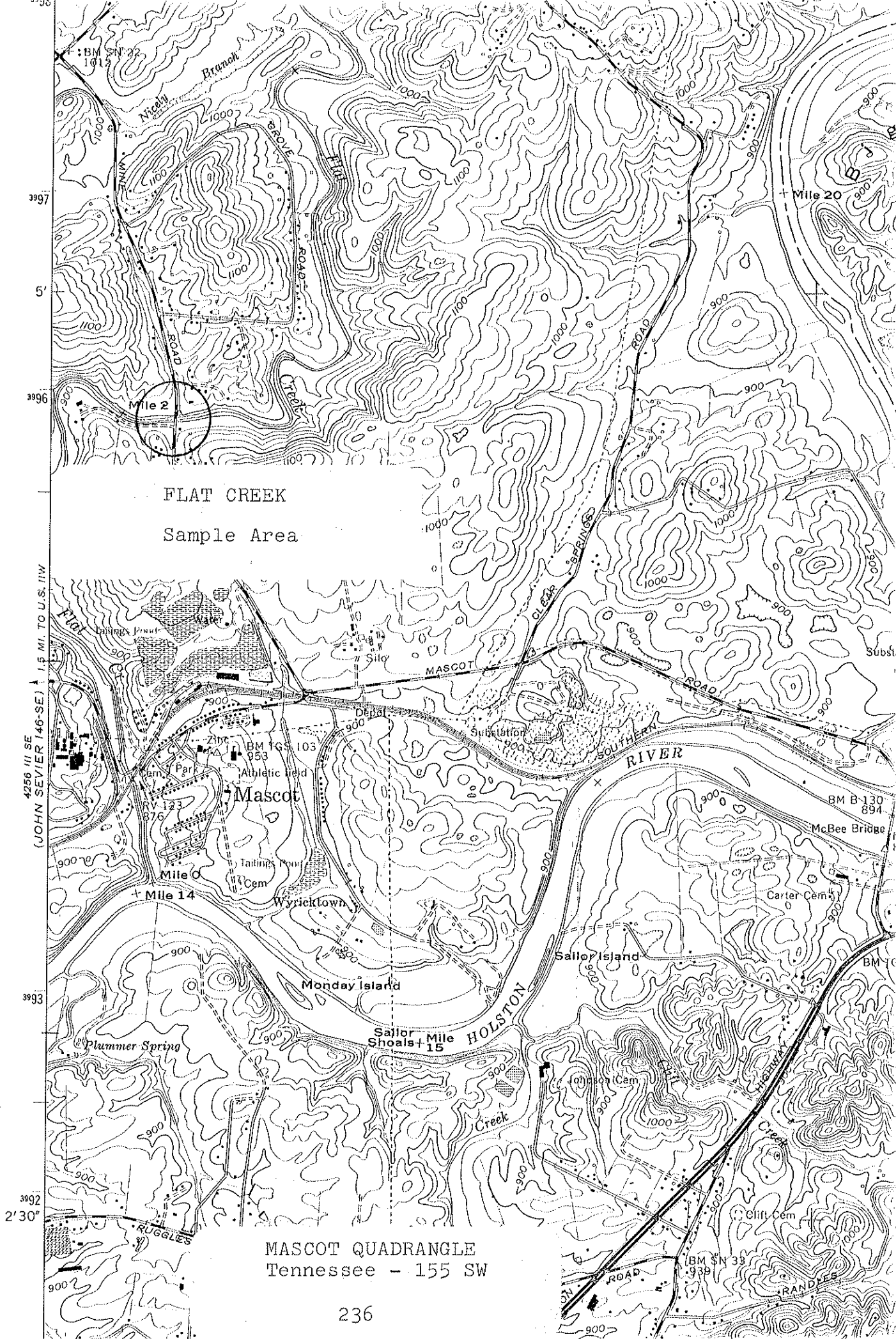
Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Smallmouth bass	2	0.7	0.7	9.4
Rock bass	17	6.3	2.55	34.2
Bluegill	1	0.4	t	
Redbreast sunfish	3	1.1	0.3	4.0
Nongame Fish	16	6.0	1.6	21.5
Forage Fish	229	85.4	2.3	30.9
Total	268		7.45	

Comments - This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Game fish included smallmouth bass (*Micropterus dolomieu*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), and redbreast sunfish (*L. auritus*). Rock bass were the principle game fish and made up about 74% of the total number of game fish collected. This stream has also has a history of trout stocking from private applications, however, we found no trout in the area sampled.

The stream receives fairly heavy siltation pollution mainly from agricultural sources throughout the watershed. We collected a total of 15 fish species from the sample site, most of which are species components of streams that exhibit typical non-point-source pollution.

Benthic macroinvertebrates from our samples included Heptageniidae and Potamanthidae mayflies, Elmidae and Psephenidae beetles, and the perlid stonefly *Neoperla clymene*. Asian clams (*Corbicula fluminea*) and river snails (*Anculosa subglobosa* and *Pleurocera unciata*) were present.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Holston River Lat-Long 360438N - 834437W
Stream Flat Creek Length of Sample 200'
Area or Station Mine Road Bridge Reach 06010104-19,0
County Knox Date/Time 16 September 1986/1030
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 39.3' Average Depth 0.5' Maximum Depth 1.6'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 10 % Silt 50 % Sand 20 %
Clay - % Gravel 10 % Rubble 5 % Boulders 5 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 30 %
Bedrock - % Other Rubble 65%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 25 %
of Stream, Average in 50 %, Poor in 25 %
7. Shade or Canopy Good over 80 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 9.4 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 79 ppm Temp. 68.4 °F % Saturation 87
10. Present Weather Cloudy
11. Past Weather (last 24 hours) Cloudy with light rain showers.
12. D.O. 7.9 pH 7.6 Temp. 68.4 Conductivity 350
13. Comments: Sample location just below the bridge on Mine Road
near Mascot. This stream appears to be a good rock bass stream.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 360438N - 834437W
 Body of Water Flat Creek Date 16 September 1986
 County or River Mile Knox Reach 06010104-19,0
 Type of Sampling Electrofishing Pool Elevation 892'
 Gear Type Backpack Shocker Time 1330-1430

200' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	4	2	0.1			
"	"	"	2	4	0.2			
"	"	"	6	5	0.6			
"	"	"	1	6	0.2			
"	"	"	3	8	0.95			
"	"	"	1	9	0.5			
<i>Lepomis auritus</i>		201	1	6	0.2			
"	"	"	1	4	0.1			
"	"	"	1	1	t			
<i>Lepomis macrochirus</i>		206	1	1	t			
<i>Micropterus dolomieu</i>		218	1	10	0.5			
"	"	"	1	6	0.2			
<i>Hypentelium nigricans</i>		166	16	3-10	1.6			
<i>Campostoma anomalum</i>		25	20	2-7	0.3			
<i>Nocomis micropogon</i>		234	12	2-8	0.85			
<i>Notropis coccogenis</i>		248	79	2-5	0.4			
<i>Notropis chrysocephalus</i>		249	36	1-5	0.25			
<i>Pimephales notatus</i>		334	4	2-3	t			
<i>Etheostoma blennioides</i>		81	15	2-5	0.2			
<i>Etheostoma jessiae</i>		96	2	2	t			
<i>Etheostoma rufilineatum</i>		108	26	2-3	0.1			
<i>Etheostoma simoterum</i>		111	24	1-2	0.05			
<i>Cottus carolinae</i>		40	11	2-4	0.15			

* Label Parameter Listed

Field Notes: Local resident says catfish are caught here, but we collected none. Saw several fish escape capture.

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Flat Creek: Edge Surber sample

16 September 1986

Field # 012

Knox Co., TN; Below the bridge on Mine Road near Mascot.
Coordinates: 360438N - 834437W. Mascot, Tenn., # 155 SW
Quad. Reach # 06010104-19,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	3
<u>Stenelmis</u> larva	1
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	5
DIPTERA:	
Tipulidae/ <u>Antocha</u> pupa	1
GASTROPODA:	
Pleuroceridae/ <u>Anculosa</u> <u>subglobosa</u>	11
<u>Pleurocera</u> <u>unciale</u>	9
LEPIDOPTERA:	
Pyralidae/ <u>Petrophila</u>	2
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	3
PLECOPTERA:	
Perlidae/ <u>Neoperla</u> <u>clymene</u>	2
	<hr/>
	37

Volumetric Displacement was 0.25 ml.

Flat Creek: Midstream Surber sample

16 September 1986

Field # 012

Knox Co., TN; Below the bridge on Mine Road near Mascot.
Coordinates: 360438N - 834437W. Mascot, Tenn., # 155 SW
Quad. Reach # 06010104-19,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	2
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	7
DIPTERA:	
Tipulidae/ <u>Limnophila</u>	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	1
Potamanthidae/ <u>Potamanthus</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Anculosa</u> <u>subglobosa</u>	6
<u>Pleurocera</u> <u>unciale</u>	14
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	3
Sphaeriidae/ <u>Sphaerium</u>	1
	<hr/>
	38

Volumetric Displacement was 0.5 ml.

Buffalo Creek

One qualitative fishery survey was conducted in April 1987:

Location and Length - Tributary to the Holston River. The sample area was located 0.4 mi. upstream of the mouth, near Tampico Church, and was sampled on 28 April 1987. It was 200 ft. in length and averaged 29 ft. in width. The stream was slightly higher than normal when sampled. The site was in Grainger County. Joppa Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Only one shocker, operating at 110 v. AC, was used.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 28 April 1987: DO - 9.8 ppm, pH - 7.9, Temperature - 61.7 F, Conductivity - 310 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 131 organisms, 2.3 ml. volumetric displacement, and represented 27 different taxa. One qualitative sample was collected upstream of Buffalo Springs Trout Hatchery. This sample contained 94 organisms and represented 19 different taxa.

Fish Collected:

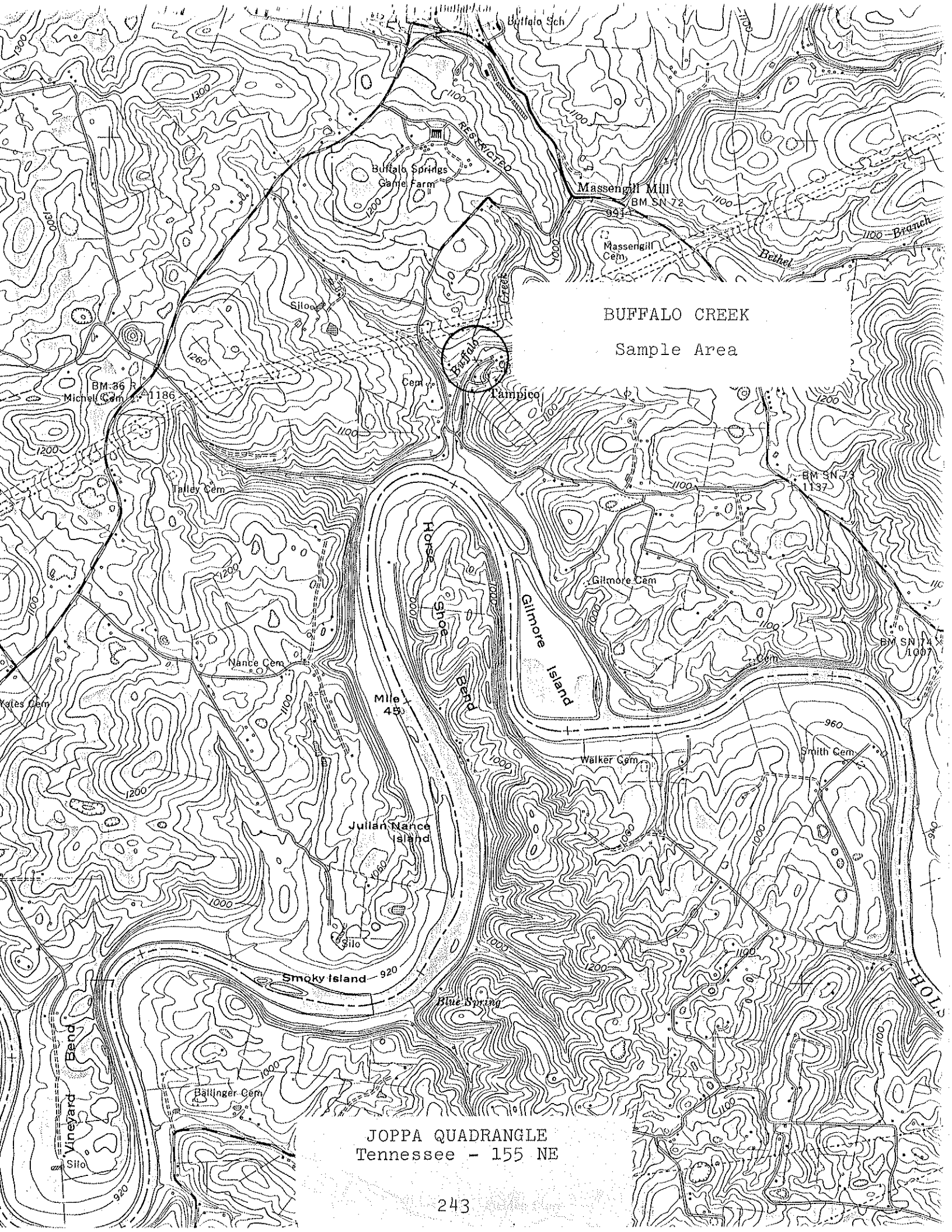
<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	6	3.5	3.9	39.2
Nongame Fish	11	6.5	3.9	39.2
Forage Fish	153	90.0	2.15	21.6
Total	170		9.95	

Comments - This stream was surveyed primarily to develop a fish species diversity list and collect stream information for TADS. Rainbow trout (*Salmo gairdneri*) were the only game fish collected from this site. These were stocked fish from Buffalo Springs Hatchery which is located approximately 1.0 air mile upstream. The stream is periodically stocked throughout the year and is open to trout fishing from the Massengill Mill Dam downstream to the Holston River. Habitat improvements and structures would greatly benefit this stream.

Only nine endemic species were collected with the

blacknose dace (*Rhinichthys atratulus*) being the most common. Typical non-point-source siltation from varied agricultural sources throughout much of the watershed along with allochthonous enrichment from the hatchery has resulted in a fish fauna primarily dominated by tolerant species.

Benthic macroinvertebrates from our samples included Baetidae, Ephemeridae, Heptageniidae, Leptophlebiidae, and Oligoneuriidae mayflies, Brachycentridae, Glossosomatidae, Hydropsychidae, Limnephilidae, Philopotamidae, Polycentropodidae, and Psychomyiidae caddisflies, and water penny beetles (*Pspehenus herricki*). *Isonychia* mayflies were very abundant as were periwinkle snails (*Goniobasis simplex*). One specimen of *Symphitopsyche etnieri* was collected from the upstream qualitative sample. Buffalo Creek is the type locality and to date the only collection locality for this species (Schuster and Etnier 1978; Schefter and Wiggins, 1986).



BUFFALO CREEK
Sample Area

JOPPA QUADRANGLE
Tennessee - 155 NE

TENNESSEE WILDLIFE RESOURCES AGENCY

PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Holston River Lat-Long 361149N - 833342W
 Stream Buffalo Creek Length of Sample 200'
 Area or Station 0.4 mi. above mouth Reach 06010104-
 County Grainger Date/Time 28 April 1987/1315
 Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 29.0' Average Depth 0.8' Maximum Depth 3.4'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 30 % Silt 40 % Sand 5 %
 Clay 5 % Gravel 5 % Rubble 5 % Boulders 10 %
 Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
 Bedrock - % Other Rubble 50% Boulders 25%
5. Abundance of Littoral Aquatic Plants is Numerous _____
 Average X Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
 of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 50 % of Stream; Interferes little
 (degree) with any (type) of fishing.
8. Flow (c.f.s.) 24.1 : Flow compared to Normal: Low _____ Normal _____ High X
9. D.O. 9.8 ppm Temp. 61.7 °F % Saturation 100
10. Present Weather Clear and mild, air temp. 68°F
11. Past Weather (last 24 hours) Clear and mild.
12. D.O. 9.8 pH 7.9 Temp. 61.7 Conductivity 310
13. Comments: Sample location 0.4 mi. above the mouth of the stream.
Siltation from agricultural practices is fairly heavy. Two
species of water cress present. Stream was 6 to 8 in. high
when surveyed.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed	Holston River	Lat-Long	361149N - 833342W
Body of Water	Buffalo Creek	Date	28 April 1987
County or River Mile	Grainger	Reach	06010104-
Type of Sampling	Electrofishing	Pool Elevation	927'
Gear Type	Backpack Shocker	Time	1415-1500
200' sample length			

[illegible]

* Label Parameter Listed

Field Notes: One river chub (*Nocomis micropogon*) was collected and released
without taking length and weight. *Rainbow trout are stocked fish.

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Buffalo Creek: Edge Surber sample

28 April 1987

Field # 033

Grainger Co., TN; About 0.4 mi. upstream of the mouth.
Coordinates: 361149N - 833342W. Joppa, Tenn., # 155 NE
Quad. Reach # 06010104-.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	14
DIPTERA:	
Chironomidae	1
Tipuliade/ <u>Antocha</u>	2
<u>Pseudolimnophila</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Ephemeridae/ <u>Ephemera</u>	5
Heptageniidae/ <u>Epeorus (Iron)</u>	1
<u>Heptagenia</u>	2
<u>Stenacron</u>	2
<u>Stenonema</u>	7
Leptophlebiidae/ <u>Habrophlebiodes</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	15
ISOPODA:	
Asellidae/ <u>Lirceus</u>	22
MEGALOPTERA:	
Sialidae/ <u>Sialis</u>	1
OLIGOCHAETA:	3
PLECOPTERA:	
Perlidae (early instars)	2
TRICHOPTERA:	
Glossosomatidae/ <u>Glossosoma</u> pupa	1
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Hydropsyche</u> pupae	2
Limnephilidae/ <u>Neophylax</u>	11
	<hr/>
	98

Volumetric Displacement was 1.9 ml.

Buffalo Creek: Midstream Surber sample

28 April 1987

Field # 033

Grainger Co., TN; About 0.4 mi. upstream of the mouth.
Coordinates: 361149N - 833342W. Joppa, Tenn., # 155 NE
Quad. Reach # 06010105-.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	30
DIPTERA:	
Chironomidae larvae	4
pupa	1
Tipulidae/ <u>Antocha</u> larva	1
pupa	1
Empididae	1
EPHEMEROPTERA:	
Baetidae/Baetis	15
Ephemerelliade/ <u>Ephemerella</u>	3
Ephemeridae/ <u>Ephemera</u>	4
Heptageniidae/ <u>Epeorus (Iron)</u>	6
<u>Heptagenia</u>	1
<u>Stenonema</u>	15
Oligoneuriidae/ <u>Isonychia</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	33
ISOPODA:	
Asellidae/ <u>Lirceus</u>	10
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
OLIGOCHAETA:	5
PLECOPTERA:	
Perlidae (early instar)	1

cont.

Buffalo Creek: Midstream Surber sample cont.

TAXA	NUMBER
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u> larvae	9
pupae	6
<u>Hydropsyche</u> pupae	3
Limnephilidae/ <u>Neophylax</u>	1
Philopotamidae/ <u>Chimarra</u> larvae	2
pupae	4
Polycentropodidae/ <u>Polycentropus</u> larvae	2
pupa	1
Psychomyiidae/ <u>Psychomyia</u> <u>flavida</u>	1
	163

Volumetric Displacement was 2.75 ml.

Buffalo Creek: Qualitative sample

30 July 1987

Field # 054

Grainger Co., TN; Downstream of bridge on Indian Ridge Road.
Coordinates: 361248N - 833347W. Joppa, Tenn., # 155 NE
Quad. Reach # 06010104-.

TAXA	NUMBER
AMPHIPODA:	
Gammaridae/ <u>Gammarus</u>	22
BRANCHIOBELLELLIDA:	1
DIPTERA:	
Ceratopogonidae/ <u>Bezzia</u> pupa	1
Chironomidae	4
Tipulidae/ <u>Antocha</u>	1
<u>Tipula</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	4
ISOPODA:	
Asellidae/ <u>Lirceus</u>	3
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	4
PLECOPTERA:	
Perlodidae/ <u>Isoperla</u>	4
TRICHOPTERA:	
Brachycentridae/ <u>Micrasema</u>	5
Glossosomatidae/ <u>Glossosoma</u>	3
Hydropsychidae/ <u>Cheumatopsyche</u>	21
<u>Hydropsyche betteni/depravata</u>	10
<u>Symphitopsyche etnieri</u>	1
<u>S. sparna</u>	1
Limnephilidae/ <u>Neophylax</u>	3
Philopotamidae/ <u>Chimarra</u> larvae	2
pupa	1

95

Poor Valley Creek

Two qualitative fishery surveys were conducted in August 1987:

Location and Length - Tributary to the Holston River (Cherokee Reservoir). Sample area 1 was at the Old Spruce Pine Church. The sample area was 300 ft. in length and averaged 30.2 ft. in width. Sample area 2 was at the third bridge upstream of Cherokee Reservoir on Poor Valley Road. The sample area was 300 ft. in length and averaged 13.3 ft. in width. Both sites were sampled on 25 August 1987 and were in Hawkins County, Lee Valley Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Each area was sampled with two shockers, operating side by side, at 110 v. AC.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and by averaging readings of two pocket pH meters, on 25 August 1987. Area 1: DO - 6.6 ppm, pH 7.3, Temperature - 65.3 F. Area 2: DO 9.4 ppm, pH - 7.4, Temperature - 74.4 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. The edge sample from area 1 was inadvertently lost. The midstream sample had 45 organisms, 0.5 ml. volumetric displacement, and represented 13 different taxa. Area 2 averaged 37 organisms, 0.4 ml. volumetric displacement, and represented 21 different taxa.

Fish Collected:

<u>Species</u>	<u>Area 1</u>				<u>Area 2</u>			
	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Spotted bass	2	1.3	0.8	3.9	7	1.3	1.0	7.5
Largemouth bass	8	5.1	2.95	14.4	9	1.7	0.1	0.7
Rock bass	2	1.3	0.85	4.2				
Bluegill	19	12.0	1.38	6.7	3	0.6	t	
Redbreast sunfish	67	42.4	3.85	18.1	125	22.9	3.33	24.9
Warmouth	6	3.8	0.32	1.6				
Nongame Fish	33	20.9	10.3	50.4	45	8.3	4.95	37.0
Forage Fish	21	13.3	t		356	65.3	3.99	29.8
Total	158		20.45		545		13.37	

Comments:

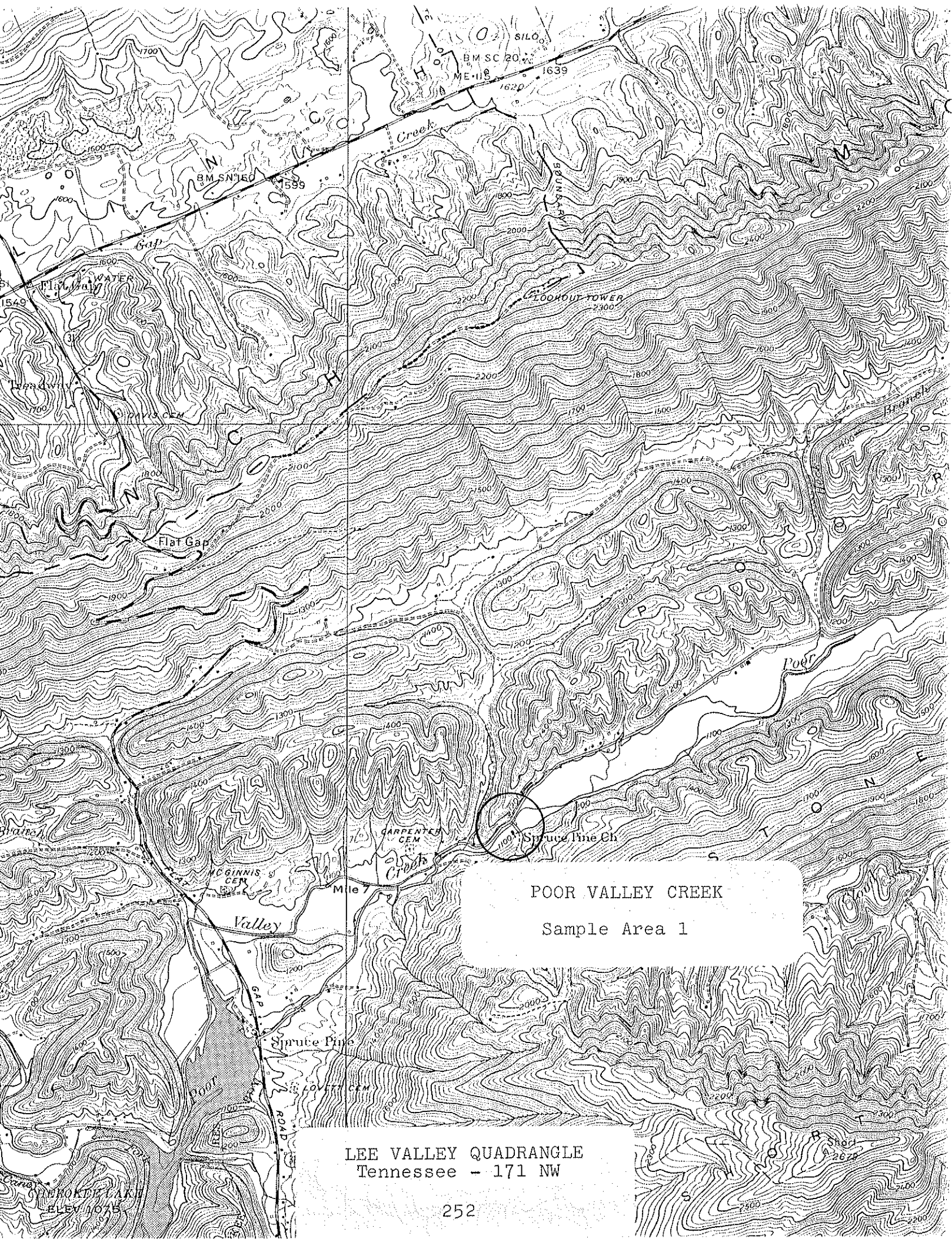
This stream was surveyed primarily to establish fishery diversity present before any construction of a proposed impoundment for rearing and release of fish into Cherokee Reservoir. At this time the project is still under proposal.

A variety of game fish from Poor Valley Creek including largemouth bass (*Micropterus salmoides*), spotted bass (*M. punctulatus*), rock bass (*Ambloplites rupestris*), redbreast sunfish (*Lepomis auritus*), warmouth (*L. gulosus*), and bluegill (*L. macrochirus*) were collected. Redbreast sunfish made up about 65% at the lower site and about 85% at the upper site of all the game fish collected. Warmouth were collected from the downstream area only, along with a single flathead catfish (*Pylodictis olivaris*), and no rock bass were collected at the upper sample area.

One species to note was the dusky darter (*Percina sciera*). Although widely distributed and abundant throughout much of the state, this darter is not commonly encountered in east Tennessee streams. A combined total of 26 fish species was collected from the two sites.

This is a very low gradient, turbid stream and non-point-source siltation is fairly heavy. This is typified by the presence of large numbers of tolerant cyprinids such as the striped shiner (*Notropis chrysocephalus*), whitetail shiner (*N. galacturus*), and bluntnose minnow (*Pimephales notatus*) and the absence of intolerant species. Anchor parasites (*Lernaea* sp.) were found on several fish and leeches were noted on the fins of other fish collected. Also, many of the fish had sores on them and several appeared to be in poor condition.

Benthic macroinvertebrates from our samples included representatives of Baetidae, Ephemeridae, Heptageniidae, and Oligoneuriidae mayflies, Hydropsychidae and Limnephilidae caddisflies, and Elmidae and Psephenidae beetles. Asian clams (*Corbicula fluminea*) and the river snail (*Pleurocera unciata*) were also present.



POOR VALLEY CREEK

Sample Area 1

LEE VALLEY QUADRANGLE
Tennessee - 171 NW

TENNESSEE WILDLIFE RESOURCES AGENCY

PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 362351N - 831154W
 Stream Poor Valley Creek Length of Sample 300'
 Area or Station Site # 1 Reach 06010104-17,1
 County Hawkins Date/Time 25 August 1987/1030
 Data Collected By Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 30.2' Average Depth 1.3' Maximum Depth 3.5'
2. Estimated Percent of Stream in Pools is 60 %
3. Estimated Percent Pool Bottom is Mud 5 % Silt 10 % Sand 15 %
 Clay - % Gravel 5 % Rubble 60 % Boulders 5 %
 Bedrock - % Other - %
- * 4. Estimated Percent Riffle Bottom is Mud - % Silt - % Sand - %
 Bedrock - % Other - %
5. Abundance of Littoral Aquatic Plants is Numerous X
 Average - Scarce -
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 85 %
 of stream, Average in 10 %, Poor in 5 %.
7. Shade or Canopy Good over 60 % of Stream.
8. Flow (c.f.s.) 10.9 : Flow compared to Normal: Low X Normal - High -
9. D.O. 6.6 ppm Temp. 65.3 °F % Saturation 71.6
10. Present Weather Overcast and warm.
11. Past Weather (last 24 hours) Overcast and warm.
- ** 12. D.O. 6.6 pH 7.3 Temp. 65.3 Conductivity -
13. Comments: Turbid, silty suspension. * No true riffle area found in
this section. Very low gradient stream. ** DO taken with YSI.
pH is average of two meter readings with pocket pH meters.
Sample location at old footbridge columns at Old Spruce Pine Church.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston River Lat-Long 362351N - 831154W
 Body of Water Poor Valley Creek Date 25 August 1987
 County or River Mile Hawkins Reach 06010104-17,1
 Type of Sampling Electrofishing Pool Elevation 1085'
 Gear Type Two backpack shockers side Time 1100-1145
side @ 110 v. AC

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	1	9	0.45			
"	"	"	1	8	0.4			
<i>Micropterus punctulatus</i>		219	1	10	0.5			
"	"	"	1	9	0.3			
<i>Micropterus salmoides</i>		220	4	11	2.3			
"	"	"	1	10	0.6			
"	"	"	3	3	0.05			
<i>Lepomis auritus</i>		201	2	1	t			
"	"	"	18	2	0.1			
"	"	"	10	3	0.2			
"	"	"	13	4	0.5			
"	"	"	14	5	1.5			
"	"	"	8	6	1.1			
"	"	"	1	7	0.2			
"	"	"	1	8	0.25			
<i>Lepomis gulosus</i>		204	2	2	0.05			
"	"	"	1	4	0.05			
"	"	"	3	5	0.22			
<i>Lepomis macrochirus</i>		206	7	2	0.1			
"	"	"	9	5	0.83			
"	"	"	3	6	0.45			
<i>Aplodinotus grunniens</i>		20	2	13-14	1.95			
<i>Pylodictis olivaris</i>		346	1	8	0.25			
Continued on next page								

* Label Parameter Listed

Field Notes: Sample length 300'. Recovery may have been poor due to
turbidity of water. Many fish with sores and in poor condition.

Name of Collector(s): Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

Site #1 - at old foot-
bridge columns
at Old Spruce
Pine Church

[illegible]

255

Poor Valley Creek: Site # 1, Midstream Surber sample

25 August 1987

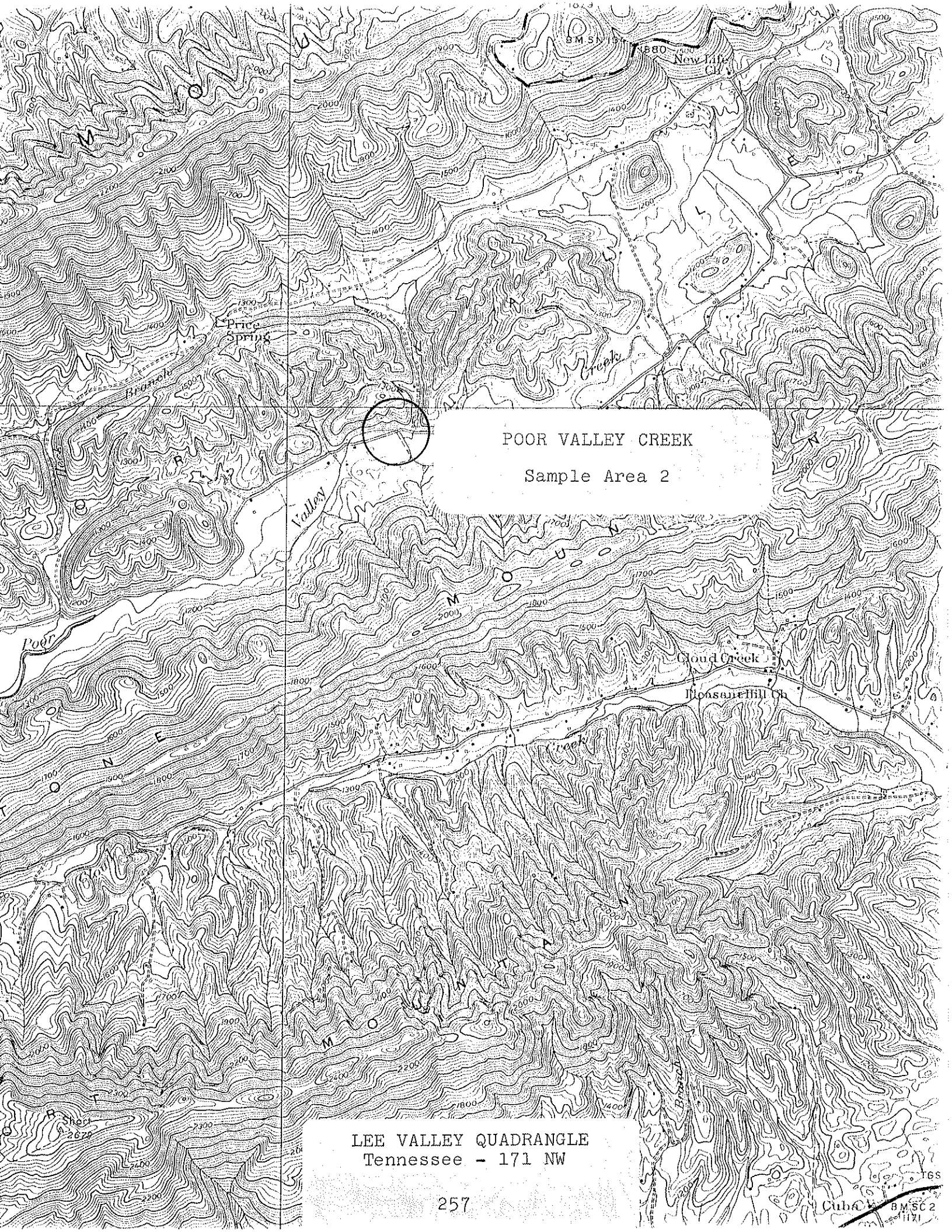
Field # 060

Hawkins Co., TN; Foot bridge at Spruce Pine Church.

Coordinates: 362351N - 831154W. Lee Valley, Tenn., 171 NW
Quad. Reach # 06010104-17,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
DIPTERA:	
Chironomidae	7
Simuliidae larvae	4
adult	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	5
<u>Pseudocloeon</u>	2
Heptageniidae/ <u>Stenonema</u>	1
Oligoneuriidae/ <u>Isonychia</u>	14
MEGALOPTERA:	
Corydalidae/ <u>Corydalis</u> <u>cornutus</u>	4
PELECYPODA:	
Corbiculidae/ <u>Corbicula</u> <u>fluminea</u>	1
PLECOPTERA:	
Perlidae (early instar)	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Hydropsyche</u>	1
H. <u>betteni</u> / <u>depravata</u>	2
	45

Volumetric Displacement was 0.5 ml.



POOR VALLEY CREEK

Sample Area 2

LEE VALLEY QUADRANGLE
Tennessee - 171 NW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 362456N - 830938W
Stream Poor Valley Creek Length of Sample 300'
Area or Station Site # 2 Reach 06010104-17,1
County Hawkins Date/Time 25 August 1987/1430
Data Collected By Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 13.3' Average Depth 0.3' Maximum Depth 0.8'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 30 % Silt 25 % Sand 25 %
Clay 5 % Gravel 5 % Rubble 5 % Boulders 5 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 25 % Sand 25 %
Bedrock 10 % Other Boulders 10% Rubble 25%
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 40 %, Poor in 30 %.
7. Shade or Canopy Good over 40 % of Stream.
8. Flow (c.f.s.) 2.2 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 9.4 ppm Temp. 74.4 °F % Saturation 111.4
10. Present Weather Overcast and warm.
11. Past Weather (last 24 hours) Overcast and warm.
- ** 12. D.O. 9.4 pH 7.4 Temp. 74.4 Conductivity -
13. Comments: Sample location just below bridge; 3 rd. bridge up on
Poor Valley Road above Cherokee Res. * Taken with YSI meter.
** pH is average of pocket pH meters readings. Siltation heavy,
slightly turbid, with silty-sandy bottom. Very low gradient.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - 3 rd. bridge up
on Poor Valley
Road

Watershed Holston River Lat-Long 362456N - 830938W
Body of Water Poor Valley Creek Date 25 August 1987
County or River Mile Hawkins Reach 06010104-17,1
Type of Sampling Electrofishing Pool Elevation 1135'
Gear Type Two backpack shockers sidetime 1515-1600
by side @ 110 v. AC.

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Micropterus punctulatus</i>		219	1	10	0.45			
"	"	"	1	9	0.45			
"	"	"	5	3	0.1			
<i>Micropterus salmoides</i>		220	8	3	0.1			
"	"	"	1	4	t			
<i>Lepomis auritus</i>		201	32	2	0.3			
"	"	"	61	3	1.05			
"	"	"	21	4	0.75			
"	"	"	8	5	0.55			
"	"	"	1	6	0.28			
"	"	"	2	7	0.4			
<i>Lepomis macrochirus</i>		206	3	2	t			
<i>Ictalurus natalis</i>		174	2	2-6	0.75			
<i>Dorosoma cepedianum</i>		48	3	7-8	0.45			
<i>Hypentelium nigricans</i>		166	37	3-10	3.0			
<i>Moxostoma duquesnei</i>		229	3	7-11	0.75			
<i>Camptostoma anomalum</i>		25	142	2-5	2.3			
<i>Nocomis micropogon</i>		234	1	6	0.1			
<i>Notropis coecogenis</i>		248	7	1-3	0.05			
<i>Notropis chrysocephalus</i>		249	61	2-5	0.8			
<i>Notropis galacturus</i>		253	31	2-4	0.15			
<i>Pimephales notatus</i>		334	57	1-3	0.2			
<i>Etheostoma blennioides</i>		81	10	2-5	0.15			
<i>Etheostoma rufilineatum</i>		108	7	2-3	0.05			
Continued		on	next	page				

* Label Parameter Listed

Field Notes: Sample length 300'.

Name of Collector(s): Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

WR-C525

Site #2 - 3 rd. bridge up
on Poor Valley
Road

[illegible]

260

Poor Valley Creek: Site # 2, Edge Surber sample

25 August 1987

Field # 061

Hawkins Co., TN; Third bridge on Poor Valley Rd. upstream of
Cherokee Reservoir. Coordinates: 362456N - 830938W. Lee
Valley, Tenn., # 171 NW Quad. Reach # 06010104-17,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	3
<u>Stenelmis</u> larva	1
DIPTERA:	
Tipulidae/ <u>Limnophila</u>	2
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	5
Ephemeridae/ <u>Ephemera</u>	1
Heptageniidae/ <u>Heptagenia</u>	6
<u>Stenonema</u>	2
Oligoneuridae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	3
MEGALOPTERA:	
Corydalidae/ <u>Corydalis cornutus</u>	1
<u>Nigronia serricornis</u>	1
ODONATA:	
Gomphidae (early instars)	3
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	2
PLECOPTERA:	
Perlidae/ <u>Acroneuria</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
<u>Hydropsyche betteni/depravata</u>	1
	34

Volumetric Displacement was 0.4 ml.

Poor Valley Creek: Site # 2, Midstream Surber sample

25 August 1987

Field # 061

Hawkins Co., TN; Third bridge on Poor Valley Rd. upstream of
Cherokee Reservoir. Coordinates: 362456N - 830938W. Lee
Valley, Tenn., # 171 NW Quad. Reach # 06010104-17,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Stenelmis</u> larvae	3
Psephenidae/ <u>Psephenus herricki</u>	8
DIPTERA:	
Chironomidae	5
Tipulidae/ <u>Limnophila</u>	3
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	4
Heptageniidae/ <u>Stenonema</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciala</u>	6
ODONATA:	
Coenagrionidae/ <u>Argia</u> (early instar)	1
Gomphidae/ <u>Stylogomphus albistylus</u>	1
PELECYPODA:	
Corbiculidae/ <u>Corbicula fluminea</u>	4
TRICHOPTERA:	
Limnephilidae/ <u>Goera</u>	2
	<hr/>
	39

Volumetric Displacement was 0.35 ml.

Hord Creek

One qualitative fishery survey was conducted in August 1987:

Location and Length - Tributary to the Holston River. The sample area was located approximately 100 yards upstream of the mouth and was sampled on 4 August 1987. It was 300 ft. in length and averaged 14.2 ft. in width. The site was in Hawkins County. Church Hill Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers were operated side by side at 110 v. AC.

Water Quality - Data were taken from midstream with a Model 58 YSI meter and a Hach Pocket pH meter. On 4 August 1987: DO - 8.7 ppm, pH - 8.4, Temperature - 72.1 F.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 38 organisms, 0.4 ml. volumetric displacement, and represented 19 different taxa.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rock bass	61	25.6	11.85	84.0
Redbreast sunfish	1	0.4	0.05	0.4
Nongame Fish	8	3.4	0.1	0.7
Forage Fish	168	70.6	2.1	15.0
Total	238		14.1	

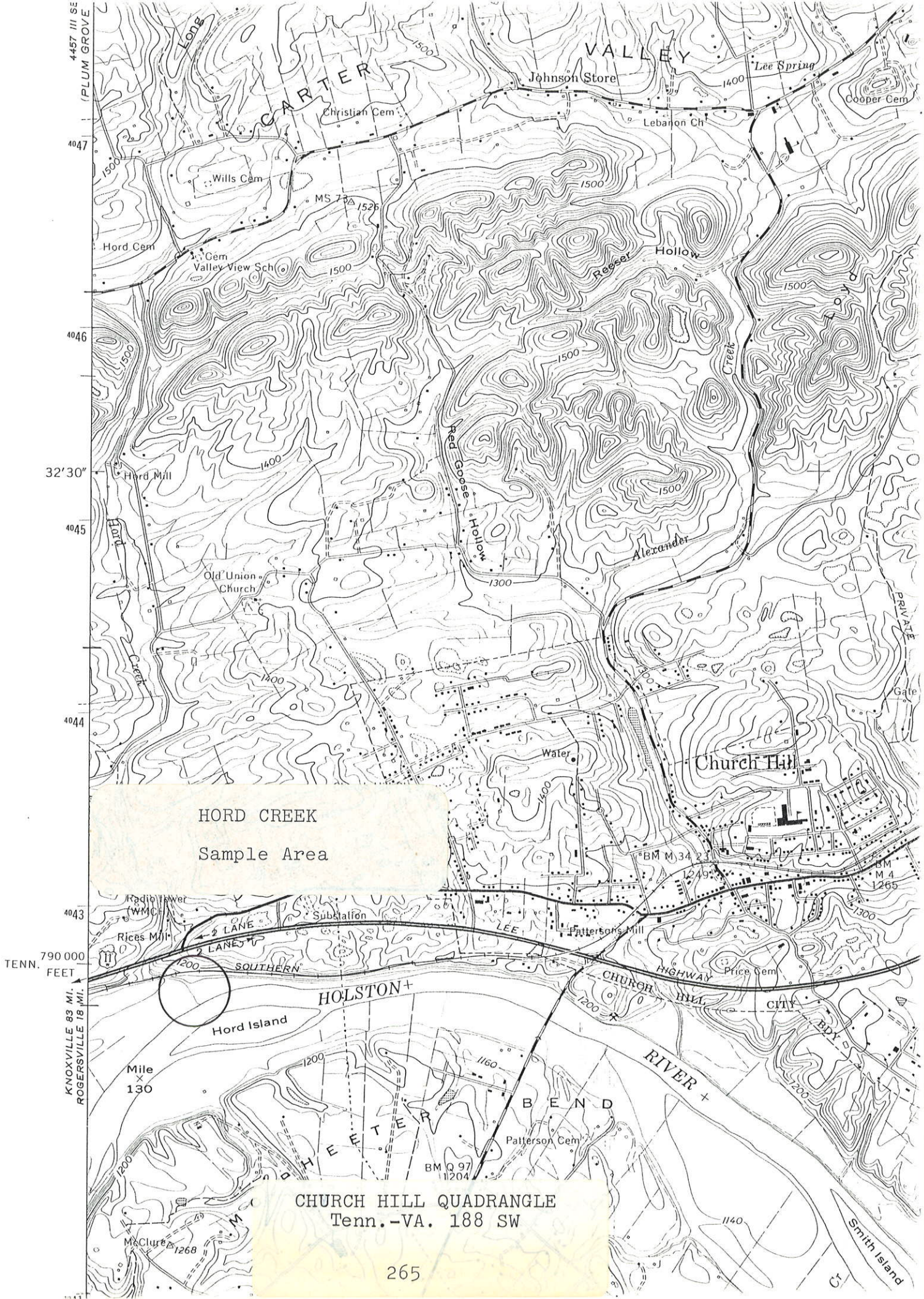
Comments - Hord Creek was surveyed primarily to establish fishery diversity present prior to any construction of a water treatment plant planned on the upper reach of the stream.

Rock bass (*Ambloplites rupestris*) along with one redbreast sunfish (*Lepomis auritus*) were the only game fish present in our sampling. A large number of rock bass (61), relative to stream size and sample length, were collected from this site. This was most probably an artifact of sample area proximity to the Holston River rather than an indication of any above normal stream abundance. They most likely move into the lower stream

from the river and it became apparent during sampling that fewer rock bass were being collected in the upper part of the sample area.

A total of 16 fish species was collected all of which are typical components of Ridge and Valley streams that exhibit medium to fairly heavy non-point-source siltation. However, the presence of the Tennessee shiner (*Notropis leuciodus*) and the telescope shiner (*N. telescopus*) indicates fairly good water quality.

Benthic macroinvertebrates from our samples included representatives of Heptageniidae, Leptophlebiidae, and Oligoneuriidae mayflies, Hydropsychidae, Limnephilidae, Philopotamidae, and Rhyacophilidae caddisflies, and Elmidae and Psephenidae beetles. The river snail *Pleurocera uncialis* was also present.



HORD CREEK
Sample Area

CHURCH HILL QUADRANGLE
Tenn.-VA. 188 SW

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Holston River Lat-Long 363103N - 824438W
Stream Hord Creek Length of Sample 300'
Area or Station Near the mouth. Reach 06010104-44.0
County Hawkins Date/Time 4 August 1987/1300
Data Collected By Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 14.2' Average Depth 0.4' Maximum Depth 1.2'
2. Estimated Percent of Stream in Pools is 30 %
3. Estimated Percent Pool Bottom is Mud 10 % Silt 30 % Sand 20 %
Clay - % Gravel 10 % Rubble 20 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 20 % Sand 20 %
Bedrock 5 % Other Rubble 30% Gravel 15%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 40 %
of stream, Average in 30 %, Poor in 30 %.
7. Shade or Canopy Good over 95 % of Stream.
8. Flow (c.f.s.) 4.5 : Flow compared to Normal: Low X Normal _____ High _____
- * 9. D.O. 8.7 ppm Temp. 72.1 °F % Saturation 99.1
10. Present Weather Partly cloudy and very hot.
11. Past Weather (last 24 hours) Partly cloudy and hot.
- ** 12. D.O. 8.7 pH 8.4 Temp. 72.1 Conductivity -
13. Comments: Sample location approximately 100 yards above the mouth.
Siltation moderate to fairly heavy. * Taken with VSI meter.
** Taken with pocket pH meter.

FISH FIELD DATA FORM

TENNESSEE WILDLIFE RESOURCES AGENCY

Watershed Holston RiverLat-Long 363103N - 824438WBody of Water Hord CreekDate 4 August 1987County or River Mile HawkinsReach 06010104-44.0Type of Sampling ElectrofishingPool Elevation 1125'Gear Type Two backpack shockers side Time 1415-1445
by side @ 110 v. AC.

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Ambloplites rupestris</i>		13	2	9	0.8			
"	"	"	9	8	2.7			
"	"	"	12	7	3.0			
"	"	"	19	6	2.95			
"	"	"	7	5	1.8			
"	"	"	6	4	0.4			
"	"	"	6	3	0.2			
<i>Lepomis auritus</i>		201	1	4	0.05			
<i>Hypentelium nigricans</i>		166	6	2-4	t			
<i>Ictalurus natalis</i>		174	2	5	0.1			
<i>Campostoma anomalum</i>		25	61	2-6	1.0			
<i>Nocomis micropogon</i>		234	11	2-4	0.1			
<i>Hybopsis amblops</i>		155	4	3	t			
<i>Notropis chrysocephalus</i>		249	10	3-4	0.1			
<i>Notropis coccogenis</i>		248	13	2-5	0.2			
<i>Notropis leuciodus</i>		255	7	3	t			
<i>Notropis telescopus</i>		272	10	3	t			
<i>Rhinichthys atratulus</i>		351	4	1-2	t			
<i>Etheostoma blennioides</i>		81	6	3-5	0.1			
<i>Etheostoma rufilineatum</i>		108	5	2-3	t			
<i>Etheostoma simoterum</i>		111	15	1-3	t			
<i>Cottus carolinae</i>		40	22	3-5	0.6			

* Label Parameter Listed

Field Notes: 300' sample length. Several fish had sores on them. The large number of rock bass collected may be due to proximity to river.Name of Collector(s): Wayne Schacher, Rick D. Bivens, and Chester J. Ellison

WR-C525

Hord Creek: Edge Surber sample

4 August 1987

Field # 055

Hawkins Co., TN; About 100 yds. upstream of the mouth.
Coordinates: 363103N - 824438W. Church Hill, Tenn.-VA.,
188 SW Quad. Reach # 06010104-44,0.

TAXA	NUMBER
BRANCHIOBELLELLIDA:	1
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
<u>Stenelmis</u> larvae	2
Psephenidae/ <u>Psephenus herricki</u>	8
DIPTERA:	
Simuliidae	1
Tipulidae/ <u>Limnophila</u>	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	2
<u>Stenonema</u>	6
Leptophlebiidae/ <u>Paraleptophlebia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera uncialis</u>	3
ISOPODA:	
Asellidae/ <u>Lirceus</u>	2
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
OLIGOCHAETA:	2
	<hr/>
	32

Volumetric Displacement was 0.25 ml.

Hord Creek: Midstream Surber sample

4 August 1987

Field # 055

Hawkins Co., TN; About 100 yds. upstream of the mouth.
Coordinates: 363103N - 824438W. Church Hill, Tenn.-VA.,
188 SW Quad. Reach # 06010104-44,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
Stenelmis larva	1
Psephenidae/ <u>Psephenus herricki</u>	9
DIPTERA:	
Chironomidae	1
Tipulidae/ <u>Limnophila</u>	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenacron</u>	3
Stenonema	7
Leptophlebiidae/ <u>Paraleptophlebia</u>	1
Oligoneuriidae/ <u>Isonychia</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera unciata</u>	7
ISOPODA:	
Asellidae/ <u>Lirceus</u>	4
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	2
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
Limnephilidae/ <u>Neophylax</u>	1
Philopotamidae/ <u>Chimarra</u>	1
Rhyacophilidae/ <u>Rhyacophila fuscata</u>	1
	43

Volumetric Displacement was 0.5 ml.

Watauga River

Two quantitative and one qualitative fishery surveys were conducted in April and September 1987:

Location and Length - Sample area 1 was on the righthand side of Saylor Island, near Watauga River mi. 16.0, and was sampled on 2 April 1987. The sample area was approximately 100 ft. in length and averaged about 60 ft. in width. Sample area 2 was at Watauga River mi. 21.4, and was sampled on 16 September 1987. The sample area was 200 ft. in length and averaged 133 ft. in width. Sample area 3 was just upstream from area 2 and was located at Watauga River mi. 21.7. It was on the right-hand side of a small island and was sampled on 16 September 1987. Site 1 was in Washington County. Bluff City Quadrangle. Sites 2 and 3 were in Carter County. Johnson City Quadrangle.

Gear Type - Sites 1 and 2 were sampled with explosives and site 3 was sampled using backpack electrofishing equipment. Primacord with a blocknet anchored downstream to collect fish was used at site 1 and 2. Two shockers, operating side by side at 110 v. AC, were used at site 3.

Water Quality - Data were taken from midstream with a Model 58 YSI meter, and a Cole Parmer pocket pH meter. Area 1, on 2 April 1987: DO - 9.1 ppm, pH - 7.9, Temperature - 47.8 F. Area 2, on 16 September 1987: DO - 10.3 ppm, pH - 8.4, Temperature - 58.8 F. No data were taken at area 3 as it was just upstream of area 2.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at site 1. At area 2, four square-foot Surber samples were collected. And, at site 3, a qualitative sample was taken using a D-frame aquatic net. Area 1 averaged 96 organisms, 1.3 ml. volumetric displacement, and represented 13 different taxa. Area 2 averaged 42 organisms, 0.7 ml. volumetric displacement, and represented 21 different taxa. The qualitative sample from area 3 contained 379 organisms and represented 26 different taxa.

Fish Collected: (See accompanying table)

Comments - The lower 9 mile stretch of the Watauga River, from Elizabethton to Boone Reservoir, has received industrial pollution from synthetic textile operations of American Bemberg and North American Rayon Corporation since the 1920s. Municipal sewage from Elizabethton and Johnson City have further added to the problem. Biological surveys from 1970

through 1982 by the Tennessee Department of Health and Environment documented the presence of only the most pollution tolerant forms of aquatic life in this segment of the stream (Mullican and Leming 1970; McKinney et al. 1987). Upstream of Elizabethton to Wilbur Dam the river is identified and managed as a highly productive trout fishery.

Reductions in effluent toxicity from the above mentioned industrial operations have resulted in recent recovery of the lower river portion for macroinvertebrates and fish. Reports from local fishermen and other sources that trout were being taken, prompted TWRA to conduct fishery surveys on the lower Watauga. We collected fish by electrofishing and detonation cord sampling and documented the presence of rainbow trout (*Salmo gairdneri*), brown trout (*S. trutta*), smallmouth bass (*Micropterus dolomieu*), and bluegill (*Lepomis macrochirus*). In all, a total of 14 fish species was collected from our sampling. Additional sampling is scheduled in 1988 to further evaluate the recovery of this portion of the river. Also, an experimental trout stocking program has recently been implemented.

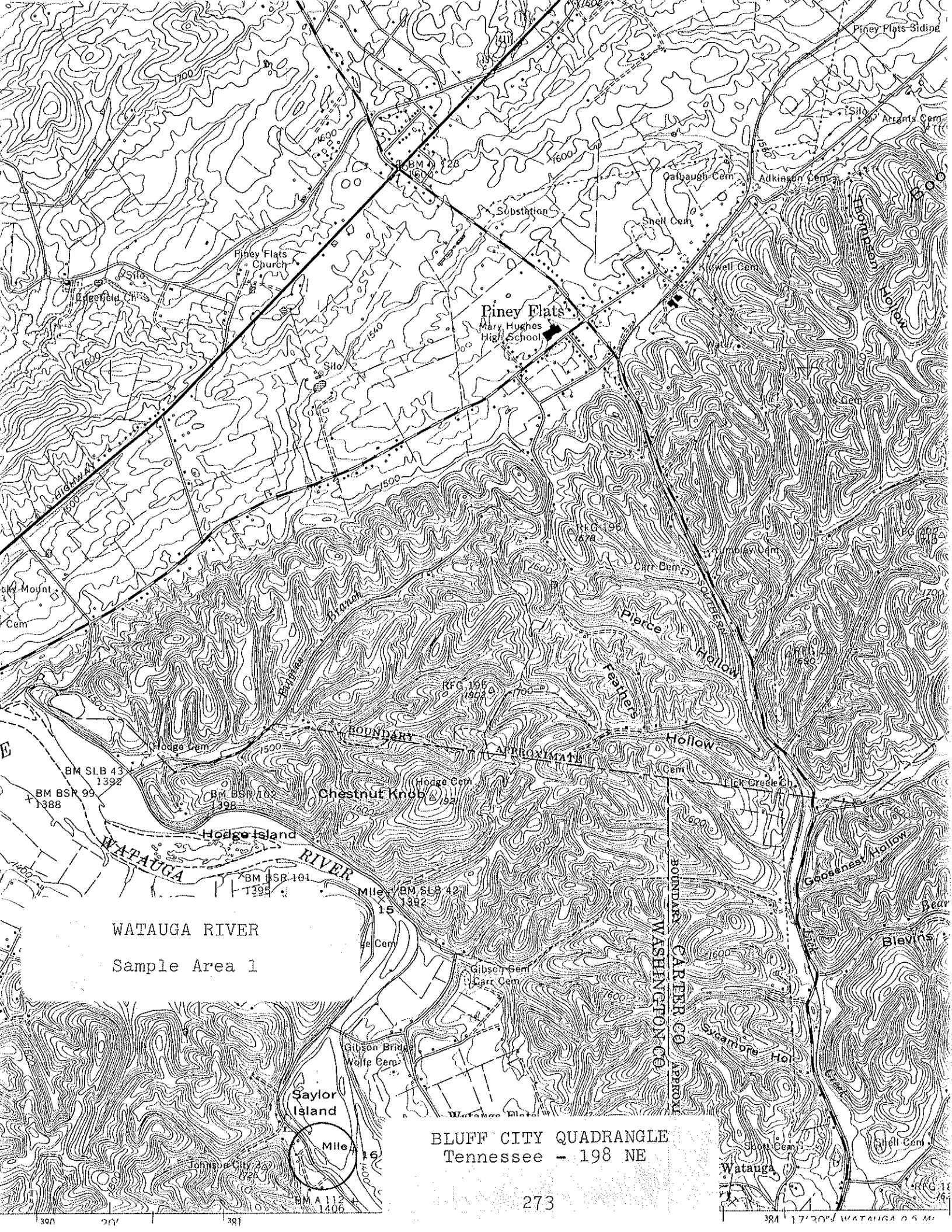
Benthic macroinvertebrates from our samples further attest to the recovery of the lower Watauga. These included representatives of Baetidae, Ephemerellidae, and Heptageniidae mayflies, Branchycentridae, Hydropsychidae, and Rhyacophilidae caddisflies, elmids riffle beetles, and Perlidae and Pteronarcyidae stoneflies. Our qualitative sample represented at least 26 different taxa. A macroinvertebrate survey of this same area in 1976 consisted of only three distinct taxa (McKinney et al. 1987).

Fish collected in three samples of the Watauga River.

<u>Actual</u>	^a <u>Area 1</u>				<u>Area 2</u>				^b <u>Area 3</u>			
	No.	%	by	No.	No.	%	by	Wt.	No.	%	by	Wt.
Species	No.	%	by	No.	No.	%	by	Wt.	No.	%	by	Wt.
Rainbow trout				1	3.7	0.63		61.2	7	3.8	2.9	40.6
Brown trout									3	1.6	1.8	25.2
Smallmouth bass				1	3.7	0.05		4.9				
Bluegill	19	72.0		1	3.7	0.05		4.9				
Nongame Fish	1	4.0		5	18.5	0.2		19.4	17	9.3	0.9	12.6
Forage Fish	6	24.0		19	70.4	0.1		9.7	155	85.2	1.55	21.7
Total	25			27		1.03			182		7.15	
<u>Calculated</u>												
<u>Standing Crop/ac</u>												
Species												
Rainbow trout				2		1.01						
Smallmouth bass				2		0.08						
Bluegill	131			2		0.08						
Nongame Fish	7			8		0.32						
Forage Fish	44			30		0.16						
Total	182			44		1.65						

^aNo weight recorded.

^bQualitative electrofishing sample.



WATAUGA RIVER

Sample Area 1

BLUFF CITY QUADRANGLE
Tennessee - 198 NE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Watauga River Lat-Long 362247N - 821923W
Stream Watauga River Length of Sample 100' (approx.)
Area or Station Site # 1 Reach 06010103-7,1
County Washington Date/Time 2 April 1987/0945
Data Collected By Rick D. Bivens, Dick Wilson, and Wayne Schacher

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 60' Average Depth 1.5' Maximum Depth 3.5'
2. Estimated Percent of Stream in Pools is - %
3. Estimated Percent Pool Bottom is Mud - % Silt - % Sand - %
Clay - % Gravel - % Rubble - % Boulders - %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt - % Sand - %
Bedrock - % Other - %
5. Abundance of Littoral Aquatic Plants is Numerous -
Average - Scarce -
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in - %
of stream, Average in - %, Poor in - %.
7. Shade or Canopy Good over - % of Stream.
8. Flow (c.f.s.) - : Flow compared to Normal: Low - Normal - High -
9. D.O. 9.1 ppm Temp. 47.8^oF % Saturation 80
10. Present Weather Partly cloudy
11. Past Weather (last 24 hours) same
12. D.O. 9.1 pH 7.9 Temp. 47.8 Conductivity -
13. Comments: Sample location at Saylor Island, righthand side (up-
stream), near Watauga River mi. 16.0, and below treatment plant.
* Estimates only.

Watauga River: Site # 1, Edge Surber sample

2 April 1987

Field # 031

Washington Co., TN; Righthand side of Saylor Island, Watauga
River mi. 16.0. Coordinates: 362247N - 821923W. Bluff
City, Tenn., # 198 Quad. Reach # 06010103-7,1.

TAXA	NUMBER
DIPTERA:	
Chironomidae larvae	5
pupa	1
Tipulidae/ <u>Antocha</u>	2
TRICHOPTERA:	
Unidentified pupa	1
Hydropsychidae/ <u>Hydropsyche betteni/depravata</u>	36
<u>Symphitopsyche bronta</u>	2
	<hr/>
	47

Volumetric Displacement was 1.0 ml.

Watauga River: Site # 1, Midstream Surber sample

2 April 1987

Field # 031

Washington Co., TN; Righthand side of Saylor Island, Watauga River mi. 16.0. Coordinates: 362247N - 821923W. Bluff City, Tenn., # 198 Quad. Reach # 06010103-7,1.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larva	1
<u>Promoresia tardella</u> larva	1
DIPTERA:	
Chironomidae	46
Tipulidae/ <u>Antocha</u> larvae	10
pupa	1
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
OLIGOCHAETA:	2
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	9
<u>Hydropsyche</u> pupa (male)	1
<u>H. betteni/depravata</u>	70
<u>Symphitopsyche sparna</u> pupa (male)	1
	144

Volumetric Displacement was 1.5 ml.

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Watauga River Lat-Long 362008N - 821612W
Stream Watauga River Length of Sample 200'
Area or Station Site # 2 Reach 06010103-12,0
County Carter Date/Time 16 September 1987/1300
Data Collected By R. Bivens, C. Ellison, D. Peterson, and D. Lane

B. PHYSICAL CHARACTERISTICS

1. Average Width 133' Average Depth 1.3' Maximum Depth 3.7'
2. Estimated Percent of Stream in Pools is 40 %
3. Estimated Percent Pool Bottom is Mud - % Silt 10 % Sand 15 %
Clay - % Gravel 10 % Rubble 40 % Boulders 20 %
Bedrock 5 % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 5 % Sand 5 %
Bedrock 5 % Other Rubble 65 % Gravel 10 % Boulders 10 %
5. Abundance of Littoral Aquatic Plants is Numerous X
Average _____ Scarce _____
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of stream, Average in 40 %, Poor in 30 %.
7. Shade or Canopy Good over 5 % of Stream.

* 8. Flow (c.f.s.) 235.1 : Flow compared to Normal: Low X Normal _____ High _____

9. D.O. 10.3 ppm Temp. 58.8 °F % Saturation 100

10. Present Weather Partly cloudy and warm.

11. Past Weather (last 24 hours) Hot and dry.

** 12. D.O. 10.3 pH 8.4 Temp. 58.8 Conductivity -

13. Comments: Sample location at Watauga River mi. 21.4. * No
generation from Wilbur Dam. ** pH taken with Cole Farmer Pocket
pH meter.

[illegible]

Field Notes:

280

Watauga River: Site # 2, Edge Surber sample # 1

16 September 1987

Field # 070

Carter Co., TN; Downstream of Elizabethton at Watauga River
mi. 21.4. Coordinates: 362008N - 821612W. Johnson City,
Tenn., # 198 SE Quad. Reach # 06010103-12,0.

TAXA	NUMBER
AMPHIPODA:	
Gammaridae	1
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
Psephenidae/ <u>Psephenus herricki</u> larva	1
DIPTERA:	
Chironomidae larvae	52
pupae	10
Tipulidae/ <u>Antocha</u> larvae	14
pupae	9
GASTROPODA:	
Physidae/ <u>Physa</u>	2
HIRUDINEA:	
Glossiphoniidae/ <u>Glossiphonia</u> *	2
ISOPODA:	
Asellidae/ <u>Asellus</u>	11
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	3
OLIGOCHAETA:	7
TRICHOPTERA:	
Hydropsychidae/ <u>Symphitopsyche morosa</u>	1
TURBELLARIA:	2
	<hr/>
	117

Volumetric Displacement was 1.1 ml.

* Identification of Glossiphonia may be questionable.

Watauga River: Site # 2, Edge Surber sample # 2

16 September 1987

Field # 070

Carter Co., TN; Downstream of Elizabethton at Watauga River
mi. 21.4. Coordinates: 362008N - 821612W. Johnson City,
Tenn., # 198 SE Quad. Reach # 06010103-12,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae larva	1
pupae	2
Empididae	1
Tipulidae/ <u>Antocha</u> larva	1
pupa	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenonema</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Symphitopsyche bronta</u>	1
<u>S. sparna</u>	1
Rhyacophilidae/ <u>Rhyacophila vuphipes</u> pupa	1
	<hr/>
	11

Volumetric Displacement was 0.25 ml.

Watauga River: Site # 2, Midstream Surber sample # 1

16 September 1987

Field # 070

Carter Co., TN; Downstream of Elizabethton at Watauga River
mi. 21.4. Coordinates: 362008N - 821612W. Johnson City,
Tenn., # 198 SE Quad. Reach # 06010103-12,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae larvae	3
pupa	1
Tipulidae/ <u>Antocha</u> larvae	7
pupae	4
EPHEMEROPTERA:	
Ephemerellidae/ <u>Serratella</u>	1
ISOPODA:	
Asellidae/ <u>Asellus</u>	2
TURBELLARIA:	1
TRICHOPTERA:	
Brachycentridae/ <u>Micrasema</u>	1
Hydropsychidae/ <u>Hydropsyche betteni/depravata</u>	1
<u>Symphitopsyche bronta</u>	1
Rhyacophilidae/ <u>Rhyacophila vuphipes</u> pupa	1
	<hr/>
	23

Volumetric Displacement was 0.75 ml.

Watauga River: Site # 2, Midstream Surber sample # 2

16 September 1987

Field # 070

Carter Co., TN; Downstream of Elizabethton at Watauga River
mi. 21.4. Coordinates: 362008N - 821612W. Johnson City,
Tenn., # 198 SE Quad. Reach # 06010103-12,0.

TAXA	NUMBER
<hr/>	
DIPTERA:	
Chironomidae larvae	3
pupae	2
Tipulidae/ <u>Antocha</u> larvae	8
pupae	2
TRICHOPTERA:	
Rhyacophilidae/ <u>Rhyacophila</u> <u>fuscula</u>	1
<u>R. vuphipes</u> pupae	2
	<hr/>
	18

Volumetric Displacement was 0.85 ml.



WATAUGA RIVER

Sample Area 3

JOHNSON CITY QUADRANGLE
Tennessee - 198 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershed Watauga River Lat-Long 361954N - 821619W
Stream Watauga River Length of Sample 300' (approx.)
Area or Station Site # 3 Reach 06010103-12.0
County Carter Date/Time 16 September 1987/1430-1530
Data Collected By Rick D. Bivens

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 70' Average Depth 1.5' Maximum Depth 4.0'
2. Estimated Percent of Stream in Pools is %
3. Estimated Percent Pool Bottom is Mud % Silt % Sand %
Clay % Gravel % Rubble % Boulders %
Bedrock % Other %
4. Estimated Percent Riffle Bottom is Mud % Silt % Sand %
Bedrock % Other %
5. Abundance of Littoral Aquatic Plants is Numerous
Average Scarce
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in %
of stream, Average in %, Poor in %.
7. Shade or Canopy Good over % of Stream.
8. Flow (c.f.s.) : Flow compared to Normal: Low Normal High
9. D.O. Temp. % Saturation
10. Present Weather Partly cloudy and warm.
11. Past Weather (last 24 hours) Hot and dry.
12. D.O. pH Temp. Conductivity
13. Comments: Sample location at Watauga River mi. 21.7, righthand
side of small island. Qualitative benthos sample collected,
no habitat data recorded. * Estimates only.

Site #3
Sample location at
Watauga River mi. 21.7.

[illegible]

Name of Collector(s): Price Wilkins, Wayne Schaher, Rick Bivens,
Chester Ellison, and Ron Jenkins

Watauga River: Site # 3, Qualitative sample

16 September 1987

Field # 071

Carter Co., TN; Downstream of mouth of Buffalo Creek at
Watauga River mi. 21.7. Coordinates: 361954N - 821619W.
Johnson City, Tenn., # 198 SE Quad. Reach # 06010103-12,0.

TAXA	NUMBER
AMPHIPODA:	
Gammaridae	3
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	16
<u>Promoresia</u> <u>tardella</u> larvae	4
<u>Stenelmis</u> adult	1
DECAPODA:	1
DIPTERA:	
Unidentified adults	25
Chironomidae larvae	114
pupae	70
Empididae	3
Simuliidae	9
Tipulidae/ <u>Antocha</u> larvae	19
pupae	2
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	20
Ephemerellidae/ <u>Serratella</u>	5
Heptageniidae/ <u>Stenonema</u>	6
GASTROPODA:	
Physidae/ <u>Physa</u>	8
ISOPODA:	
Asellidae/ <u>Asellus</u>	24
MEGALOPTERA:	
Corydalidae/ <u>Nigronia</u> <u>serricornis</u>	13
OLIGOCHAETA:	1

cont.

Watauga River: Site # 3, Qualitative sample cont.

TAXA	NUMBER
PLECOPTERA:	
<u>Perlidae/Acroneuria abnormis</u>	3
<u>Pteronarcyidae/Allonarcys</u>	1
TRICHOPTERA:	
<u>Brachycentridae/Micrasema</u>	2
<u>Hydropsychidae/Symphitopsyche bronta</u>	8
<u>S. morosa</u>	3
<u>S. sparna</u>	10
<u>Rhyacophilidae/Rhyacophila fuscula</u>	1
<u>R. vuphipes larvae</u>	3
pupae	3
TURBELLARIA:	1
	379

Buffalo Creek

One quantitative fishery survey was conducted in April 1987:

Location and Length - Tributary to the Watauga River. The sample area was located just downstream of the bridge on Warrior Lane, downstream from Milligan College, and was sampled on 2 April 1987. It was 100 ft. in length and averaged approximately 12 ft. in width. The site was in Carter County. Johnson City Quadrangle.

Gear Type - The site was sampled using explosives. Primacord with a blocknet anchored downstream to collect fish was used.

Water Quality - Data were taken midstream with a 4041 Hydrolab. On 2 April 1987: DO - 11.5 ppm, pH - 7.6, Temperature - 52.3 F, Conductivity - 265 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 96 organisms, 1.8 ml. volumetric displacement, and represented 22 different taxa.

Fish Collected:

Actual

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	4	2.4	0.55	7.4
Nongame Fish	80	47.6	5.9	79.2
Forage Fish	84	50.0	1.0	13.4
Total	168		7.45	

Calculated Standing Crop/ac

<u>Species</u>		
Rainbow trout	145	19.97
Nongame Fish	2904	214.17
Forage Fish	3049	36.3
Total	6098	270.44

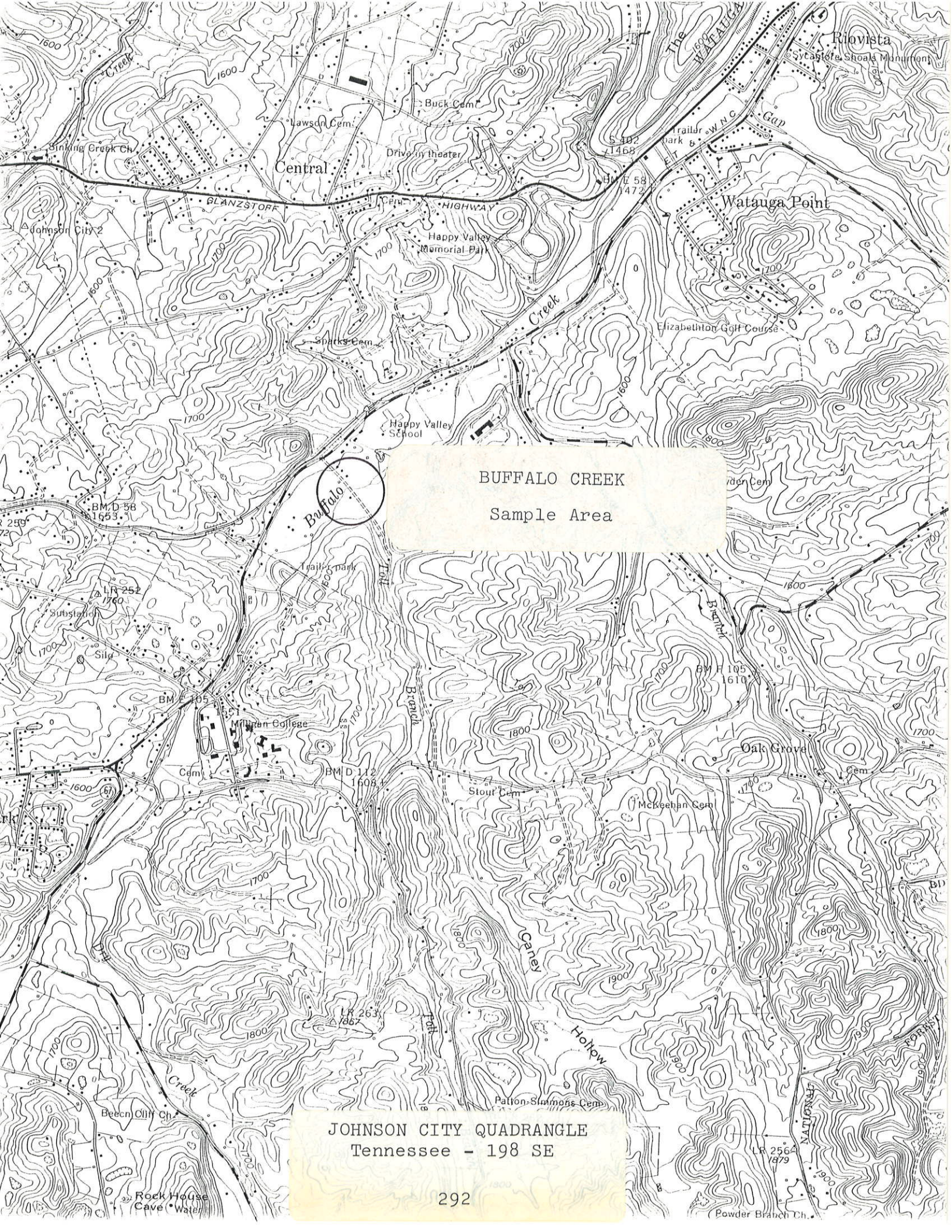
Comments:

This stream was checked after sampling the Watauga River, as we were in the area and had time to conduct an additional survey. The sampling was done primarily to gain more experience with primacord as a sampling technique as well as to develop a fish species diversity list and collect stream information for TADS.

Rainbow trout (*Salmo gairdneri*) were the only game fish present. This stream receives occasional stocking of trout fingerlings by TWRA and also from private applications. Trout from the Watauga River may also use the stream for spawning and to some extent the stream apparently supports its own trout population.

A total of 10 fish species in all was collected from this site. White suckers (*Catostomus commersoni*) and central stone-rollers (*Campostoma anomalum*) comprised about 63% of all fish collected.

Benthic macroinvertebrates from our samples included representatives of Baetidae, Ephemerellidae, Ephemera, Heptageniidae, and Oligoneuriidae mayflies, Hydropsychidae, Limnephilidae, and Psychomyiidae caddisflies, and Dryopidae, Elmidae and Psephenidae beetles. Midge larvae (Chironomidae) were abundant.



BUFFALO CREEK
Sample Area

JOHNSON CITY QUADRANGLE
Tennessee - 198 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Watauga River Lat-Long 361844N - 821712W
Stream Buffalo Creek Length of Sample 100'
Area or Station Warrior Ln. Bridge Reach 06010103-45,0
County Carter Date/Time 2 April 1987/1420
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

- * 1. Average Width 12' Average Depth 1.5' Maximum Depth 3.5'
2. Estimated Percent of Stream in Pools is 30 %.
3. Estimated Percent Pool Bottom is Mud 20 % Silt 40 % Sand 10 %
Clay 5 % Gravel 5 % Rubble 10 % Boulders 10 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 10 % Silt 50 % Sand 20 %
Bedrock - % Other Rubble 20%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 20 % of Stream; Interferes little
(degree) with any (type) of fishing.
* 8. Flow (c.f.s.) - : Flow compared to Normal: Low _____ Normal _____ High _____
** 9. D.O. 11.5 ppm Temp. 52.3 °F % Saturation 105
10. Present Weather Cold, windy, and overcast.
11. Past Weather (last 24 hours) Clear to partly cloudy and cool.
** 12. D.O. 11.5 pH 7.6 Temp. 52.3 Conductivity 265
13: Comments: Sample location just below bridge on Warrior Lane,
downstream from Milligan College. *Widths and depths are est.
only. **Hydrolab readings are questionable.

FISH FIELD DATA FORM

Watershed	Watauga River	Lat-Long	361844N - 821712W
Body of Water	Buffalo Creek	Date	2 April 1987
County or River Mile	Carter	Reach	06010103-45,0
Type of Sampling	Explosives	Pool Elevation	1510'
Gear Type	Primacord	Time	1200-1300
100' sample length			

[illegible]

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): W. Schacher, D. Peterson, R. Bivens, B. Smith,
G. Moats, C. Ellison

Buffalo Creek: Edge Surber sample

2 April 1987

Field # 032

Carter Co., TN; Downstream of bridge on Warrior Lane.
Coordinates: 361844N - 821712W. Johnson City, Tenn., # 198
SE Quad. Reach # 06010103-45,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	2
DIPTERA:	
Chironomidae larvae	14
pupa	1
EPHEMEROPTERA:	
Unidentified adult	1
Baetidae/ <u>Baetis</u>	1
Ephemerellidae/ <u>Ephemerella</u>	3
Ephemeridae/ <u>Ephemera</u>	3
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenacron</u>	6
<u>Stenonema</u>	9
Oligoneuriidae/ <u>Isonychia</u>	1
GASTROPODA:	
Pleuroceridae/ <u>Pleurocera</u> <u>canaliculatum</u>	1
ISOPODA:	
Asellidae/ <u>Asellus</u>	1
<u>Lirceus</u>	43
TRICHOPTERA:	
Unidentified adult	1
Hydropsychidae/Unidentified pupa	1
<u>Cheumatopsyche</u>	7
<u>Hydropsyche</u> <u>betteni/depravata</u>	1
<u>Symphitopsyche</u> <u>bronta</u>	1
Psychomyiidae/ <u>Psychomyia</u> <u>flavida</u>	4
	<hr/>
	102

Volumetric Displacement was 1.5 ml.

Buffalo Creek: Midstream Surber sample

2 April 1987

Field # 032

Carter Co., TN; Downstream of bridge on Warrior Lane.
Coordinates: 361844N - 821712W. Johnson City, Tenn., # 198
SE Quad. Reach # 06010103-45,0.

TAXA	NUMBER
COLEOPTERA:	
Dryopidae/ <u>Helichus</u>	1
Elmidae (early instar)	1
Psephenidae/ <u>Psephenus</u> <u>herricki</u>	1
DIPTERA:	
Chironomidae larvae	17
pupae	4
Tipulidae/ <u>Antocha</u> larvae	8
pupae	5
EPHEMEROPTERA:	
Ephemerellidae/ <u>Ephemerella</u>	9
Ephemeridae/ <u>Ephemera</u>	1
Heptageniidae/ <u>Stenacron</u>	10
<u>Stenonema</u>	19
Oligoneuriidae/ <u>Isonychia</u>	1
TRICHOPTERA:	
Hydropsychidae/Unidentified pupa	1
<u>Cheumatopsyche</u> larvae	6
pupa	1
Limnephilidae/ <u>Neophylax</u>	5
	<hr/>
	90

Volumetric Displacement was 2.0 ml.

Laurel Fork (Headwaters)

One qualitative fishery survey was conducted in September 1986:

Location and Length - Tributary to the Doe River. The sample area was located at the mouth of Little Laurel Fork and was sampled on 18 September 1986. It was 300 ft. in length and averaged 21 ft. in width. The site was in Carter County. White Rocks Mountain Quadrangle.

Gear Type - The site was sampled using backpack electrofishing equipment. Two shockers were operated side by side.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. On 18 September 1986: DO - 9.9 ppm, pH - 7.1, Temperature - 55.9 F, Conductivity - 50 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at the site. The samples averaged 24 organisms, 0.6 ml. volumetric displacement, and represented 14 different taxa.

Fish Collected:

<u>Species</u>	<u>No.</u>	<u>% by No.</u>	<u>Wt.</u>	<u>% by Wt.</u>
Rainbow trout	1	0.8	0.5	5.9
Brown trout	29	23.9	3.7	44.0
Nongame Fish	9	7.4	3.2	38.1
Forage Fish	82	67.8	1.0	11.9
Total	121		8.4	

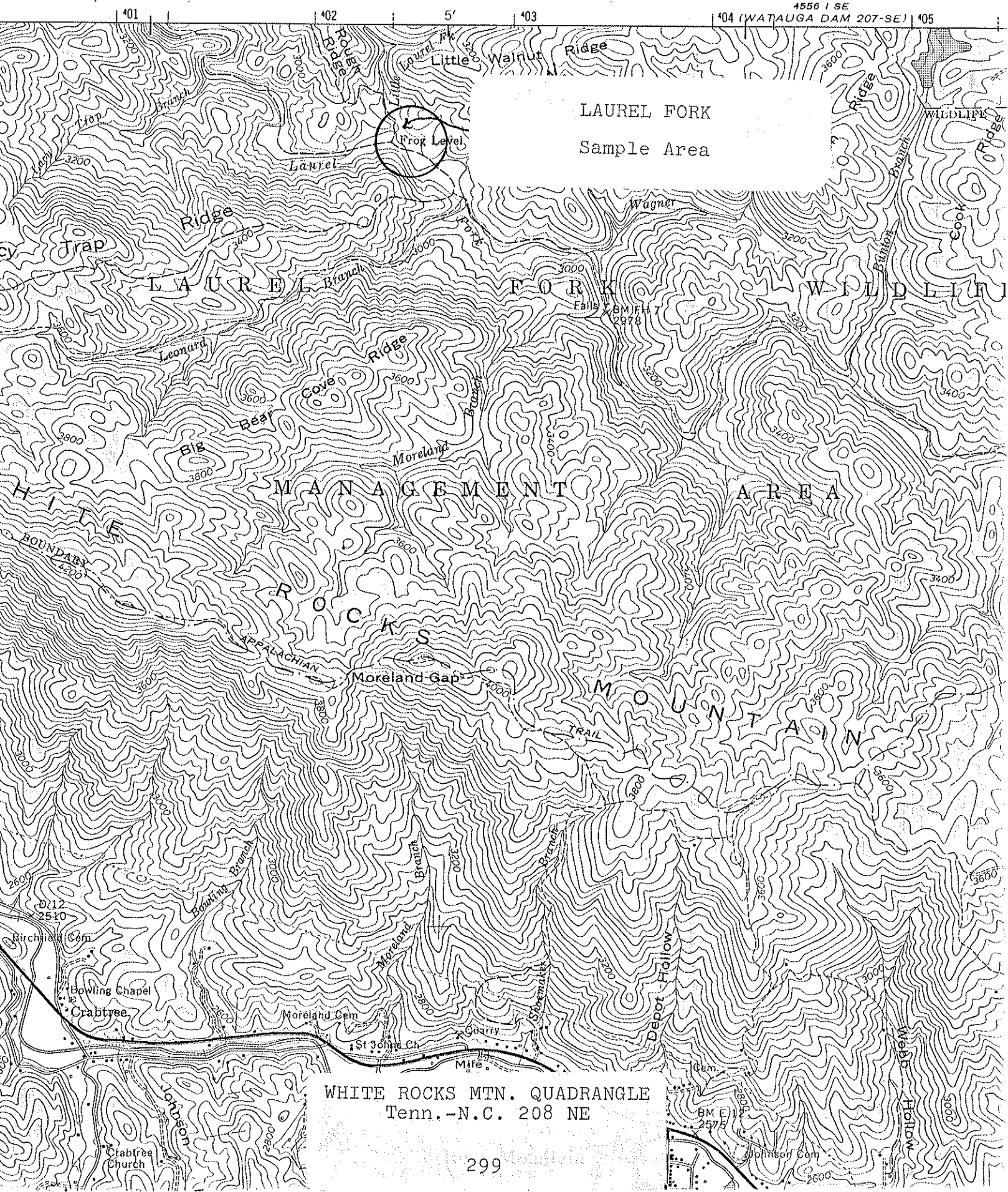
Comments - This stream was surveyed primarily to assess its trout population. In our collections, trout were the only game fish present and the stream appears to have a healthy stream reproducing population of brown trout (*Salmo trutta*). This substantiates a recent decision to discontinue stocking of hatchery trout and reclassification to a wild trout stream.

Our collections represented 5 fish species, one of which was a single stocked rainbow trout (*S. gairdneri*). Our survey was similar to those of Laurel Fork made in 1979. At that time brown trout were found throughout the stream on the 8.2 mile segment of Forest Service land and all appeared to be natural stream reproduction. Rainbow trout were all

hatchery fish and no young of the year were collected (Bivens 1984). Prior to the 1970s Laurel Fork was known primarily as a rainbow trout stream. It appears that brown trout have now completely replaced the rainbow trout in Laurel Fork and its headwater tributaries.

It is interesting to note that no sculpin (*Cottus* sp.) were collected during our recent survey or during prior surveys (Whitworth and Strange 1979; Bivens 1984). Sculpin are generally a very common species component of almost all streams and rivers throughout east Tennessee and are widely distributed from warm-water streams to cold mountain streams. Predation by brown trout may be a factor involved in their apparent absence. However, they also appear to be absent from the headwater tributaries of Laurel Fork, many of which do not have brown trout (Bivens 1984).

Benthic macroinvertebrates from our samples included representatives of Baetidae and Heptageniidae mayflies, Limnephilidae, Odontoceridae, and Psychomyiidae caddisflies, Perlidae and Perlodidae stoneflies, and elmids riffle beetles. The periwinkle snail (*Goniobasis simplex*) was also present.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead Watauga River Lat-Long 361443N - 820512W
Stream Laurel Fork Length of Sample 300'
Area or Station Frog Level Reach 06010103-17,0
County Carter Date/Time 18 September 1986/1000
Data Collected By Rick D. Bivens, Chester J. Ellison, and Wayne Schacher

B. PHYSICAL CHARACTERISTICS

1. Average Width 21' Average Depth 0.7' Maximum Depth 2.8'
2. Estimated Percent of Stream in Pools is 40 %.
3. Estimated Percent Pool Bottom is Mud 5 % Silt 35 % Sand 35 %
Clay - % Gravel 5 % Rubble 15 % Boulders 5 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud - % Silt 15 % Sand 35 %
Bedrock 10 % Other Rubble 40%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 75 % of Stream; Interferes some
(degree) with fly (type) of fishing.
8. Flow (c.f.s.) 12.9 : Flow compared to Normal: Low X Normal _____ High _____
9. D.O. 9.9 ppm Temp. 55.9 °F % Saturation 95
10. Present Weather Overcast
11. Past Weather (last 24 hours) Partly cloudy to overcast.
12. D.O. 9.9 pH 7.1 Temp. 55.9 Conductivity 50
13. Comments: Sample location at the mouth of Little Laurel Fork.

FISH FIELD DATA FORM

Watershed <u>Watauga River</u>	Lat-Long <u>361443N - 820512W</u>
Body of Water <u>Laurel Fork</u>	Date <u>18 September 1986</u>
County or River Mile <u>Carter</u>	Reach <u>06010103-17,0</u>
Type of Sampling <u>Electrofishing</u>	Pool Elevation <u>2850'</u>
Gear Type <u>2 Backpack Shockers</u>	Time <u>1100-1200</u>

300' sample length

[illegible]

* Label Parameter Listed

Field Notes: The rainbow trout was a stocked fish.

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Wayne Schacher

WR-C525

Laurel Fork: Edge Surber sample

18 September 1986

Field # 014

Carter Co., TN; Road crossing at the mouth of Little Laurel Fork. Coordinates: 361443N - 820512W. White Rocks Mtn., Tenn.-N.C., # 208 NE Quad. Reach # 06010103-17,0.

TAXA	NUMBER
DIPTERA:	
Chironomidae	3
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	2
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	6
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
ODONATA:	
Gomphidae (early instar)	1
TRICHOPTERA:	
Odontoceridae/ <u>Psilotreta</u>	1
Psychomyiidae/ <u>Psychomyia flavida</u>	1
	<hr/>
	15

Volumetric Displacement was 0.25 ml.

Laurel Fork: Midstream Surber sample

18 September 1986

Field # 014

Carter Co., TN; Road crossing at the mouth of Little Laurel Fork. Coordinates: 361443N - 820512W. White Rocks Mtn., Tenn.-N.C, # 208 NE Quad. Reach # 06010103-17,0.

TAXA	NUMBER
COLEOPTERA:	
Elmidae/ <u>Optioservus</u> larvae	10
DIPTERA:	
Tipulidae/ <u>Limnophila</u>	3
EPHEMEROPTERA:	
Baetidae/ <u>Pseudocloeon</u>	1
Heptageniidae/ <u>Heptagenia</u>	1
<u>Stenonema</u>	6
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	4
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
PLECOPTERA:	
Perlidae/ <u>Phasganophora capitata</u>	1
Perlodidae/ <u>Isogenoides</u> (early instar)	1
TRICHOPTERA:	
Limnephilidae/ <u>Goera</u> larva	1
pupae	2
Odontoceridae/ <u>Psilotreta</u>	2
	<hr/>
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Volumetric Displacement was 1.0 ml.

Beaverdam Creek

Two qualitative fishery surveys were conducted in September 1986:

Location and Length - Tributary to the South Fork Holston River.

Sample area 1 was at Backbone Rock and was sampled on 10 September 1986. The sample area was 300 ft. in length and averaged 30 ft. in width. Sample area 2 was just upstream from the mouth of Arnold Branch and was sampled on 17 September 1986. The sample area was 300 ft. in length and averaged 30.2 ft. in width. Both sites were in Johnson County. Laurel Bloomery Quadrangle.

Gear Type - Both sites were sampled using backpack electrofishing equipment. Area 1 was sampled using one shocker. Area 2 was sampled with two shockers operating side by side.

Water Quality - Data were taken from midstream with a 4041 Hydrolab. Area 1, on 10 September 1986: DO - 9.9 ppm, pH - 7.5, Temperature - 59.7 F, Conductivity - 83 micromhos/cm. Area 2, on 17 September 1986: DO - 9.9 ppm, pH - 7.6, Temperature - 60.1 F, Conductivity - 96 micromhos/cm.

Benthos Collection - Benthic organisms were collected from two square-foot Surber samples at each site. Area 1 averaged 20 organisms, 0.4 ml. volumetric displacement, and represented 11 different taxa. Area 2 averaged 34 organisms, 0.8 ml. volumetric displacement, and represented 10 different taxa.

Fish Collected:

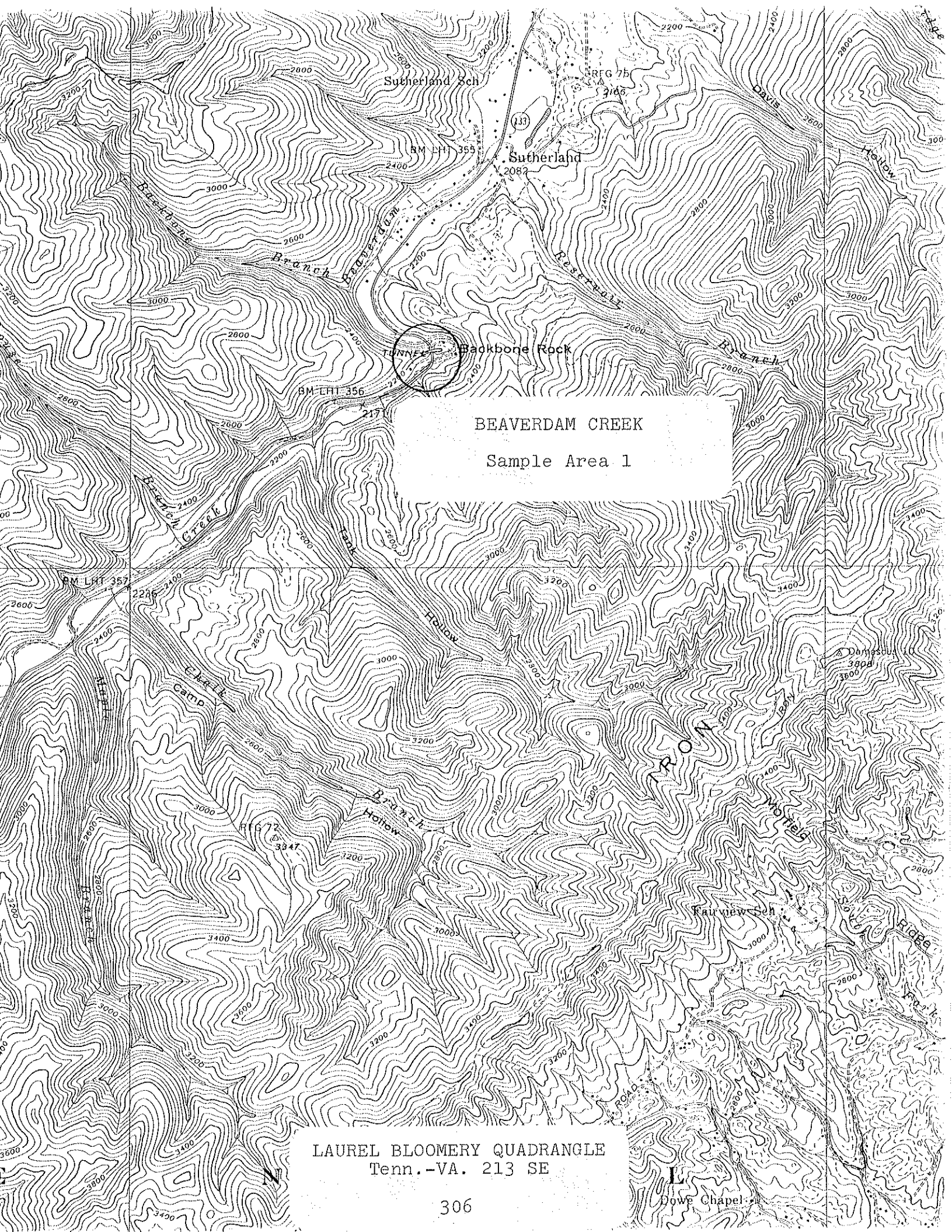
Species	Area 1				Area 2			
	No.	% by No.	Wt.	% by Wt.	No.	% by No.	Wt.	% by Wt.
Rainbow trout	21	8.8	2.35	19.2	18	7.6	3.0	16.5
Brown trout	14	5.9	1.2	9.8	24	10.0	7.85	43.1
Nongame Fish	1	0.4	0.5	4.1	7	2.9	3.3	18.1
Forage Fish	202	84.9	8.2	66.9	189	79.4	4.05	22.3
Total	238		12.25		238		18.2	

Comments - This stream was surveyed primarily to assess its trout population. In our collections, trout were the only game fish present and the stream appears to have a healthy stream reproducing population of both brown (*Salmo trutta*) and rainbow trout (*S. gairdneri*). This substantiates a recent

decision to discontinue stocking of hatchery trout and reclassification to a wild trout stream.

We collected a total of 16 fish species from both sites combined, similar to those reported by Etnier et al. (1983). Sculpin collected from Beaverdam Creek were identified as an "odd-ball" series. Dr. Robert Jenkins, Roanoke College, identified them as *Cottus baileyi*-like form showing trends towards the *C. bairdi*-like form with an apparent trend in upstream/downstream morphology.

Benthic macroinvertebrates from our samples included representatives of Baetidae, Heptageniidae, Leptophlebiidae, Ephemeridae, and Oligoneuriidae mayflies, Hydropsychidae and Limnephilidae caddisflies, and Perlidae stoneflies. Periwinkle snails (*Goniobasis simplex*) were also present.



BEAVERDAM CREEK

Sample Area 1

LAUREL BLOOMEY QUADRANGLE
Tenn.-VA. 213 SE

TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead S. Fork Holston River Lat-Long 363536N - 814856W
Stream Beaverdam Creek Length of Sample 300'
Area or Station Site # 1 Reach 06010102-23,0
County Johnson Date/Time 10 September 1986/1145
Data Collected By Rick D. Bivens and Chester J. Ellison

B. PHYSICAL CHARACTERISTICS

1. Average Width 30' Average Depth 1.7' Maximum Depth 3.75'
2. Estimated Percent of Stream in Pools is 35 %.
3. Estimated Percent Pool Bottom is Mud 5 % Silt 15 % Sand 5 %
Clay 5 % Gravel 10 % Rubble 5 % Boulders 5 %
Bedrock 50 % Other %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 5 % Sand 5 %
Bedrock 40 % Other Rubble 45%
5. Abundance of Littoral Aquatic Plants is Numerous
Average Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 30 %
of Stream, Average in 35 %, Poor in 35 %
7. Shade or Canopy Good over 50 % of Stream; Interferes little
(degree) with any (type) of fishing.
8. Flow (c.f.s.) 40.8 : Flow compared to Normal: Low Normal X High
9. D.O. 9.9 ppm Temp. 59.7 °F % Saturation 97
10. Present Weather Clear & sunny
11. Past Weather (last 24 hours) Partly cloudy; no rain.
12. D.O. 9.9 pH 7.5 Temp. 59.7 Conductivity 83
13. Comments: Sample location just above the upper bridge at Back-
bone Rock.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #1 - Bridge above
Backbone Rock

Watershed South Fork Holston River Lat-Long 363536N - 814856W

Body of Water Beaverdam Creek Date 10 September 1986

County or River Mile Johnson Reach 06010102-23,0

Type of Sampling Electrofishing Pool Elevation 2220'

Gear Type Backpack shocker Time 1300-1500

300' sample length

Name	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Salmo gairdneri</i>		353	1	11	0.5			
"	"	"	3	10	0.9			
"	"	"	1	8	0.15			
"	"	"	4	7	0.4			
"	"	"	4	6	0.3			
"	"	"	6	3	0.1			
"	"	"	2	2	t			
<i>Salmo trutta</i>		355	2	9	0.5			
"	"	"	1	8	0.2			
"	"	"	1	7	0.15			
"	"	"	2	5	0.1			
"	"	"	3	4	0.15			
"	"	"	4	3	0.1			
"	"	"	1	2	t			
<i>Hypentelium nigricans</i>		166	1	11	0.5			
<i>Camptostoma anomalum</i>		25	74	1-8	5.5			
<i>Nocomis micropogon</i>		234	56	1-9	2.3			
<i>Notropis coecogenis</i>		248	16	2-3	0.1			
<i>Notropis leuciodus</i>		255	1	3	t			
<i>Notropis rubricroceus</i>		262	25	1-3	0.1			
<i>Rhinichthys cataractae</i>		352	1	6	0.05			
<i>Semotilus atromaculatus</i>		360	1	5	t			
<i>Etheostoma simoterum</i>		111	7	2-3	t			
* <i>Cottus</i> sp.		42	21	1-3	0.15			

* Label Parameter Listed

Field Notes: Many fish escaped capture. * Dr. Robert Jenkins identified the sculpin as *Cottus baileyi*-like showing trends toward *C. bairdi*-like form.

Name of Collector(s): Rick D. Bivens and Chester J. Ellison

WR-C525

Beaverdam Creek: Site # 1, Edge Surber sample

10 September 1986

Field # 009

Johnson Co., TN; Upstream of upper bridge at Backbone Rock.
Coordinates: 363536N - 814856W. Laurel Bloomery, Tenn.-
VA., # 213 SE Quad. Reach # 06010102-23,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	5
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Heptageniidae/ <u>Stenonema</u>	1
Leptophlebiidae/ <u>Paraleptophlebia</u>	1
MEGALOPTERA:	
Corydalidae/ <u>Corydalus cornutus</u>	1
TRICHOPTERA:	
Hydropsychidae/ <u>Cheumatopsyche</u>	1
Limnephilidae/ <u>Goera</u>	1
	<hr/>
	11

Volumetric Displacement was 0.25 ml.

Beaverdam Creek: Site # 1, Midstream Surber sample

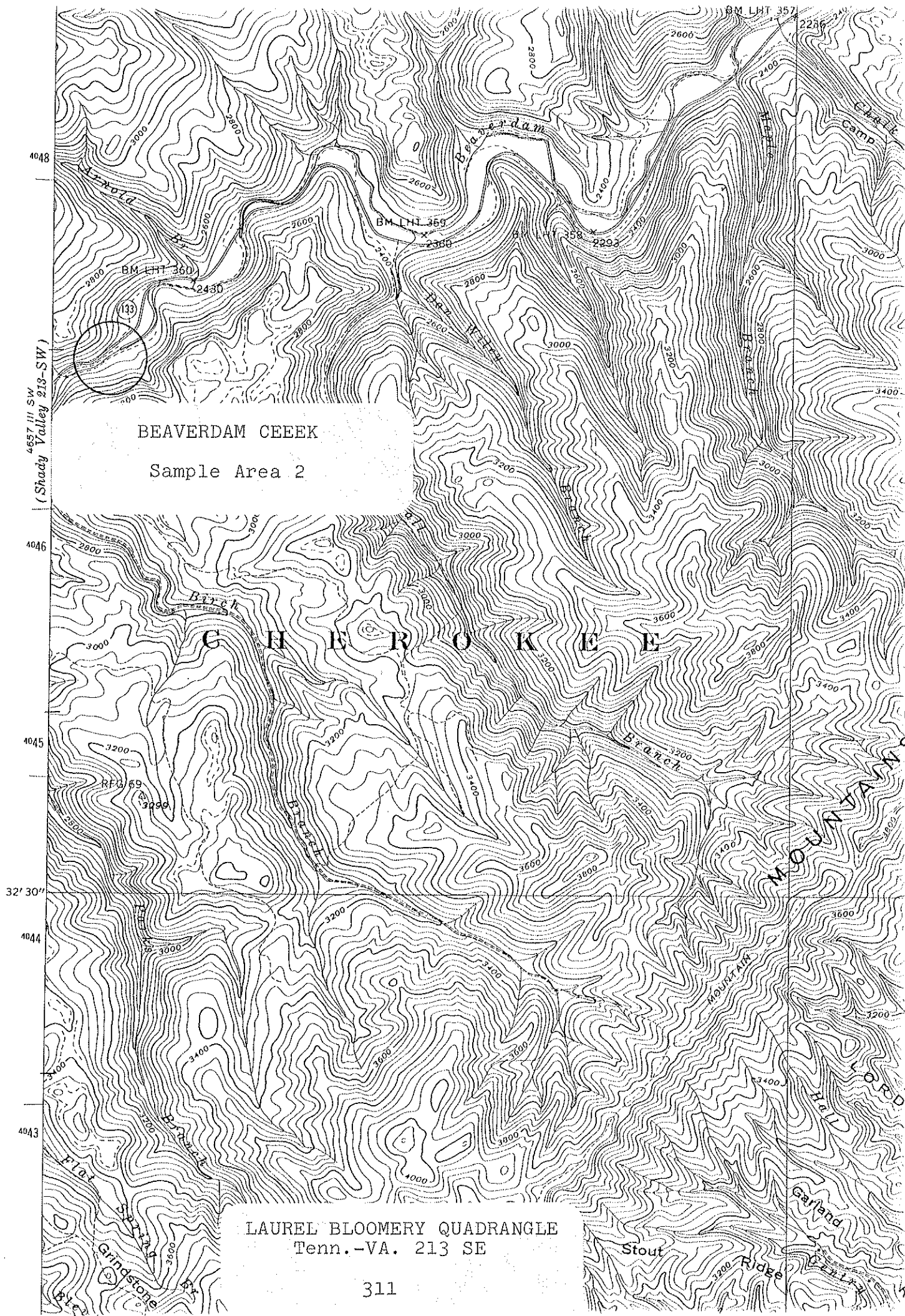
10 September 1986

Field # 009

Johnson Co., TN; Upstream of upper bridge at Backbone Rock.
Coordinates: 363536N - 814856W. Laurel Bloomery, Tenn.-
VA., # 213 SE Quad. Reach # 06010102-23,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Heptageniidae/ <u>Stenonema</u>	11
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	4
PLECOPTERA:	
Perlidae/ <u>Paragnetina</u>	2
TRICHOPTERA:	
Hydropsychidae/ <u>Symphitopsyche bronta</u>	2
	<hr/>
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Volumetric Displacement was 0.5 ml.



TENNESSEE WILDLIFE RESOURCES AGENCY
PHYSIOCHEMICAL STREAM SURVEY FORM

A. LOCATION

Watershead S. Fork Holston River Lat-Long 363413N - 815210W
Stream Beaverdam Creek Length of Sample 300'
Area or Station Site # 2 Reach 06010102-23,0
County Johnson Date/Time 17 September 1986/1230
Data Collected By Rick D. Bivens, Chester J. Ellison, and Wayne Schacher

B. PHYSICAL CHARACTERISTICS

1. Average Width 30.2' Average Depth 0.9' Maximum Depth 3.1'
2. Estimated Percent of Stream in Pools is 50 %.
3. Estimated Percent Pool Bottom is Mud 5 % Silt 10 % Sand 10 %
Clay - % Gravel 10 % Rubble 40 % Boulders 25 %
Bedrock - % Other - %
4. Estimated Percent Riffle Bottom is Mud 5 % Silt 10 % Sand 10 %
Bedrock - % Other Rubble 75%
5. Abundance of Littoral Aquatic Plants is Numerous _____
Average _____ Scarce X
6. Cover Abundance (overhanging banks, logs, roots, etc.) is Good in 50 %
of Stream, Average in 25 %, Poor in 25 %
7. Shade or Canopy Good over 80 % of Stream; Interferes some
(degree) with fly (type) of fishing.
8. Flow (c.f.s.) 30.4 : Flow compared to Normal: Low _____ Normal X High _____
9. D.O. 9.9 ppm Temp. 60.1 °F % Saturation 98
10. Present Weather Clear
11. Past Weather (last 24 hours) Partly cloudy
12. D.O. 9.9 pH 7.6 Temp. 60.1 Conductivity 96
13. Comments: Sample location upstream from the mouth of Arnold
Branch.

FISH FIELD DATA FORM
TENNESSEE WILDLIFE RESOURCES AGENCY

Site #2 - Upstream from
the mouth of
Arnold Branch.

Watershed South Fork Holston River Lat-Long 363413N - 815210W
Body of Water Beaverdam Creek Date 17 September 1986
County or River Mile Johnson Reach 06010102-23,0
Type of Sampling Electrofishing Pool Elevation 2450'
Gear Type 2 Backpack Shockers Time 1415-1615
300' sample length

NAME	SPECIES	CODE	NUMBER	LENGTH	WT.	*	*	*
<i>Salmo gairdneri</i>		353	2	11	0.8			
"	"	"	3	9	0.9			
"	"	"	2	8	0.4			
"	"	"	4	7	0.4			
"	"	"	3	6	0.3			
"	"	"	3	5	0.2			
"	"	"	1	3	t			
<i>Salmo trutta</i>		355	1	21	3.25			
"	"	"	2	13	2.1			
"	"	"	4	9	1.0			
"	"	"	4	8	0.9			
"	"	"	3	7	0.4			
"	"	"	3	4	0.1			
"	"	"	7	3	0.1			
<i>Catostomus commersoni</i>		32	2	11-13	1.8			
<i>Hypentelium nigricans</i>		166	5	6-11	1.5			
<i>Campostoma anomalum</i>		25	26	1- 8	1.9			
<i>Nocomis micropogon</i>		234	46	1- 9	1.6			
<i>Notropis coccoensis</i>		248	6	3- 4	0.1			
<i>Notropis rubricroceus</i>		262	25	1- 3	0.1			
<i>Rhinichthys atratulus</i>		351	3	3- 3	t			
<i>Rhinichthys cataractae</i>		352	6	4	0.15			
Continued on		next	page					

* Label Parameter Listed

Field Notes: _____

Name of Collector(s): Rick D. Bivens, Chester J. Ellison, and Wayne Schacher

WR-C525

Site #2 - Upstream from
the mouth of
Arnold Branch.

[illegible]

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Beaverdam Creek: Site # 2, Edge Surber sample

17 September 1986

Field # 013

Johnson Co., TN; Upstream from the mouth of Arnold Branch.
Coordinates: 363413N - 815210W. Laurel Bloomery, Tenn.-
VA., # 213 SE Quad. Reach # 06010102-23,0.

TAXA	NUMBER
COLEOPTERA:	
Psephenidae/ <u>Psephenus herricki</u>	6
DIPTERA:	
Chironomidae	1
EPHEMEROPTERA:	
Baetidae/ <u>Baetis</u>	2
Ephemeridae/ <u>Ephemera</u>	3
Heptageniidae/ <u>Stenonema</u>	7
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	4
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
TRICHOPTERA:	
Limnephilidae/ <u>Neophylax</u> pupae	3
	<hr/>
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Volumetric Displacement was 1.0 ml.

Beaverdam Creek: Site # 2, Midstream Surber sample

17 September 1986

Field # 013

Johnson Co., TN; Upstream from the mouth of Arnold Branch.
Coordinates: 363413N - 815210W. Laurel Bloomery, Tenn.-
VA., # 213 SE Quad. Reach # 06010102-23,0.

TAXA	NUMBER
COLEOPTERA:	
Osegebudae/ <u>Psephenus herricki</u>	10
DIPTERA:	
Unidentified pupa	1
Chironomidae	3
EPHEMEROPTERA:	
Heptageniidae/ <u>Epeorus (Iron)</u>	1
<u>Heptagenia</u>	1
<u>Stenonema</u>	16
Oligoneuriidae/ <u>Isonychia</u>	3
GASTROPODA:	
Pleuroceridae/ <u>Goniobasis simplex</u>	3
MEGALOPTERA:	
Corydalidae/ <u>Nigronia serricornis</u>	1
TRICHOPTERA:	
Limnephilidae/ <u>Neophylax</u> pupa	1
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	40

Volumetric Displacement was 0.5 ml.

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